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GROUNDWATER MONITORING REPORT

June 1999 Sampling Event

Former Nello Teer Quarry

5013 Denfield Street

Durham, North Carolina

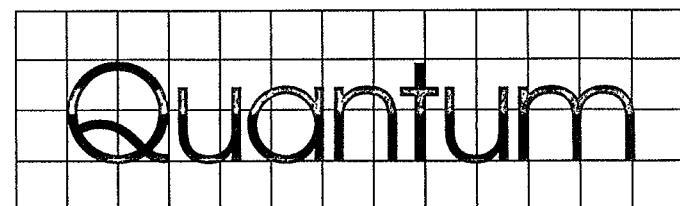
Prepared for:
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JAN 14 2000

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November 1999

Quantum Project No. 0013-94-012



Groundwater Monitoring Report

Former Nello Teer Quarry
5013 Denfield Street
Durham, North Carolina
Durham County
GW Incident # 9357

Date of Report: November 17, 1999

Site Priority Ranking: 110B

Responsible Party: Nello Teer Company
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(919) 477-2413

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Quantum Project No. 0013-94-012

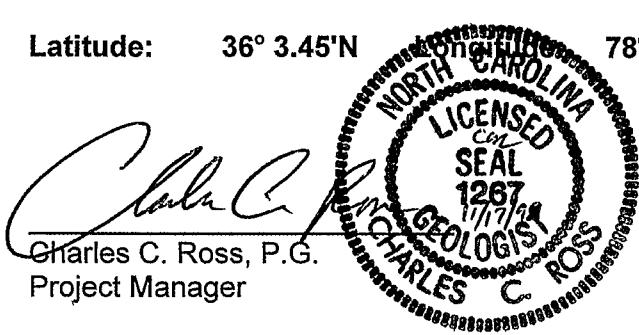
JAN 14 2000

Release Information:

The soil and groundwater contamination by petroleum hydrocarbons appeared to have originated from gasoline, diesel, and waste oil underground storage tanks (UST's) located at a former gas station on-site (multiple UST nests). Additional groundwater contamination, by chlorinated hydrocarbons, appears to have originated from an asphalt testing laboratory formerly operated by the North Carolina Department of Transportation (NCDOT).

Latitude: 36° 3.45'N **Longitude:** 78° 53.10'W

Charles C. Ross, P.G.
Project Manager



Michael T. Melia
Michael T. Melia, P.E.
President

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Quantum, Environmental, Inc. (Quantum) personnel completed the Compliance Monitoring sampling of groundwater from selected monitor wells near the former Nello Teer (Teer) Quarry on June 19th and 20th, 1999. This report presents the sampling methodologies, groundwater flow directions, current extent of contamination, and the analytical results provided by Environmental Laboratory Services (ELS).

1.0 INTRODUCTION

The Durham Quarry is a former aggregate mining and processing facility located on Denfield Street (State Road 1641) north of Durham in Durham County, North Carolina (Figure 1). The property has been in operation as a crushed stone quarry and asphalt plant since the 1940s. Groundwater contamination found in the water supply well designated W-1 prompted the issuance of a Notice of Violation from the North Carolina Division of Environmental Management (NCDEM) under the North Carolina Groundwater Standards (15 NCAC 2L) in November 1993.

1.0 *Site Location and History*

The soil and groundwater contamination by petroleum hydrocarbons appeared to have originated from gasoline, diesel, and waste oil underground storage tanks (UST's) located at a former gas station on-site (multiple UST nests). Additional groundwater contamination, by chlorinated hydrocarbons, appears to have originated from an asphalt testing laboratory formerly operated by the North Carolina Department of Transportation (NCDOT). A Comprehensive Site Assessment Report, submitted by Geogenetics, Inc. in 1993 indicated a large volume of contaminated soil and groundwater existed at the site, however, many of Geogenetics' conclusions were based on field organic vapor analyzer results only and were not confirmed with laboratory analysis.

Quantum performed confirmation analyses of the areas of soil and groundwater contamination designated by Geogenetics and determined that the soil contamination was not as extensive as reported. Quantum submitted a revised Corrective Action Plan (CAP) for soil and groundwater remediation along with applications for a permit to land apply hydrocarbon contaminated soils and a discharge permit (NPDES) for treated groundwater. The permits were issued and work on the land application of contaminated soil was completed in 1997. Quantum completed construction and started up the groundwater remediation system in October, 1997. To date (mid-July 1999), over 3 million gallons of groundwater have been recovered and successfully treated by this remediation system.

There are currently nine monitoring wells for the shallow (water table) aquifer and eleven monitoring wells for the deep (semi-confined) aquifer at the site. In addition, there are seven recovery wells in place at the site. Three recovery wells are located

near the old gas station on the southern portion of the site, three are located at the site of the old asphalt plant on the northern portion of the site, and one deep recovery well is located between the two source areas. A well location map is presented as Figure 2.

2.0 GROUNDWATER SAMPLING METHODS

Prior to collecting groundwater samples, water levels were measured in the monitoring wells using an electronic water level meter. The expansion plugs were removed from each well and enough time was allowed before collecting the measurements to permit the water level in the monitoring wells to equilibrate with the ambient atmospheric pressure. Depth of well measurements were also collected from the monitoring wells to be sampled, to determine the volume of groundwater in these wells. The measurements were collected to an accuracy of 0.01 feet and recorded in the field logbook.

In order to prevent cross contamination from one well to another while collecting water levels Quantum personnel changed to new, clean, non-reactive gloves, of a chemical composition adequate for protection from the chemicals involved, prior to measuring each well. The electronic water level meter probe and tape were decontaminated following EPA/DEM protocol prior to collecting measurements from each well. Water level data from all wells are presented in Table 1.

All monitoring wells were purged by removing at least three well volumes of groundwater using new disposable bailers and new nylon rope. Purge water and decontamination water were disposed of on-site. Upon allowing groundwater levels to equilibrate to or near static water levels after purging, water samples were collected from the following wells:

Shallow: MW-7, MW-17, MW-18, MW-24, MW-25 and MW-26;

Deep: MW-1, MW-11, MW-13, MW-14I, MW-15I, MW-16I, MW-20D, MW-22 and MW-23

The samples were placed in labeled, laboratory prepared containers, stored on ice in a cooler, and transported under Chain of Custody to TestAmerica, a subcontract laboratory for ELS, for analysis by EPA Methods 601, 602, and 610. Environmental Laboratory Services is a North Carolina certified laboratory. A copy of the laboratory results and chain of custody is included in Appendix A.

3.0 RESULTS

Potentiometric data collected from the monitoring wells indicates that groundwater flow direction for the shallow aquifer is towards the east with an average hydraulic gradient

of 0.025 ft./ft. Water levels were lower than during the previous sampling event presumably due to a combination of operation of the pump and treat remediation system, summer season water table low, and below average rainfall at the site. The groundwater flow direction for the deep aquifer is also towards the east/southeast, towards a tributary of the Eno River, with an average hydraulic gradient of 0.060 feet/feet. Table 1 presents a summary of the water level data from the June 1999 sampling event. Figures 3 and 4 presents potentiometric maps of the shallow and deep aquifers, respectively.

3.1 Discussion of Sampling Results

Laboratory analytical results of the June 1999 sampling event indicate that, with the exception of MW-23, levels of petroleum and/or chlorinated hydrocarbons detected in the shallow wells have decreased slightly since the May 1998 sampling event.

Chlorinated hydrocarbon levels in the vicinity of the former asphalt plant have shown decreases in concentrations in the shallow aquifer and have remained relatively constant in the deep aquifer since the last sampling event. Of the five monitoring wells that previously indicated the presence of vinyl chloride (MW-17, MW-18, MW-20D, MW-25 and MW-26), a final degradation product of chlorinated hydrocarbons, only MW-18 and MW-25 showed decreased levels of vinyl chloride during the current sampling period.

Summaries of the current laboratory analytical results for the shallow and deep aquifers are presented in Table 2 and Table 3, respectively. Figures 5 and 6 show the benzene and vinyl chloride plume maps, respectively, for the deep aquifer. Figures 7 through 9 show the vinyl chloride, 1,1,1-trichloroethane, and 1,2-dichloroethane plume maps, respectively, for the shallow aquifer.

4.0 REMEDIATION SYSTEM OPERATION

The remediation system at the Teer site was restarted in early February, 1999 after a down period dating from July 1998 through February 1999. High concentrations of iron in the water had created a nuisance iron problem resulting in iron precipitation buildup on system components and in the carbon polishing units which caused an extended system shutdown. An amendment to the NPDES permit was applied for and granted for the site for the addition of an iron sequestering agent to the treatment system to keep the iron in solution. The process of research and implementation of the iron sequestering agent caused the remediation system to be out of operation for much of 1998. Once these problems were overcome, the system was restarted in early 1999. The system has been operational since that time. Monthly sampling parameters and quarterly chronic toxicity sampling have passed each event. The site has been in compliance throughout 1999.

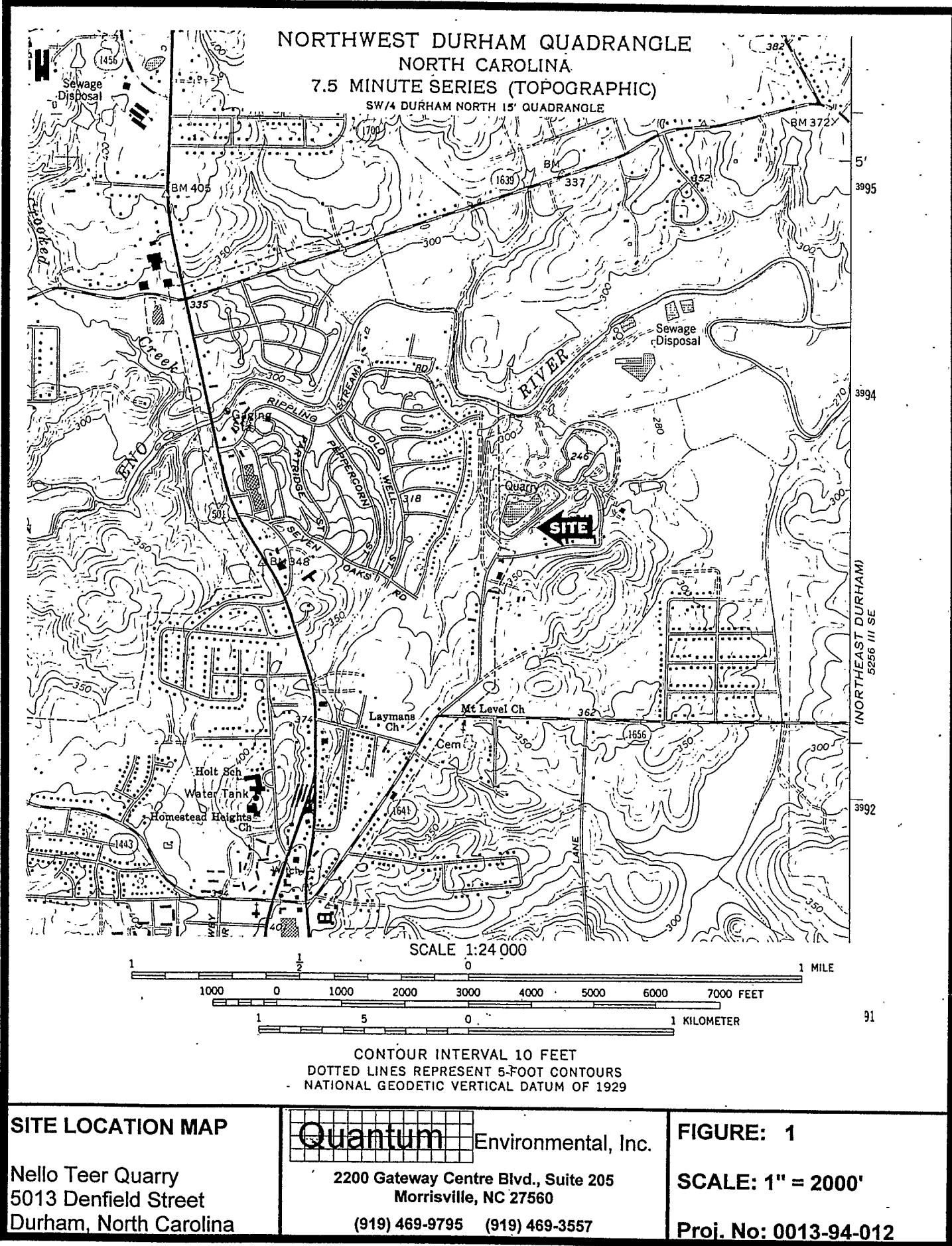
5.0 CONCLUSIONS AND RECOMMENDATIONS

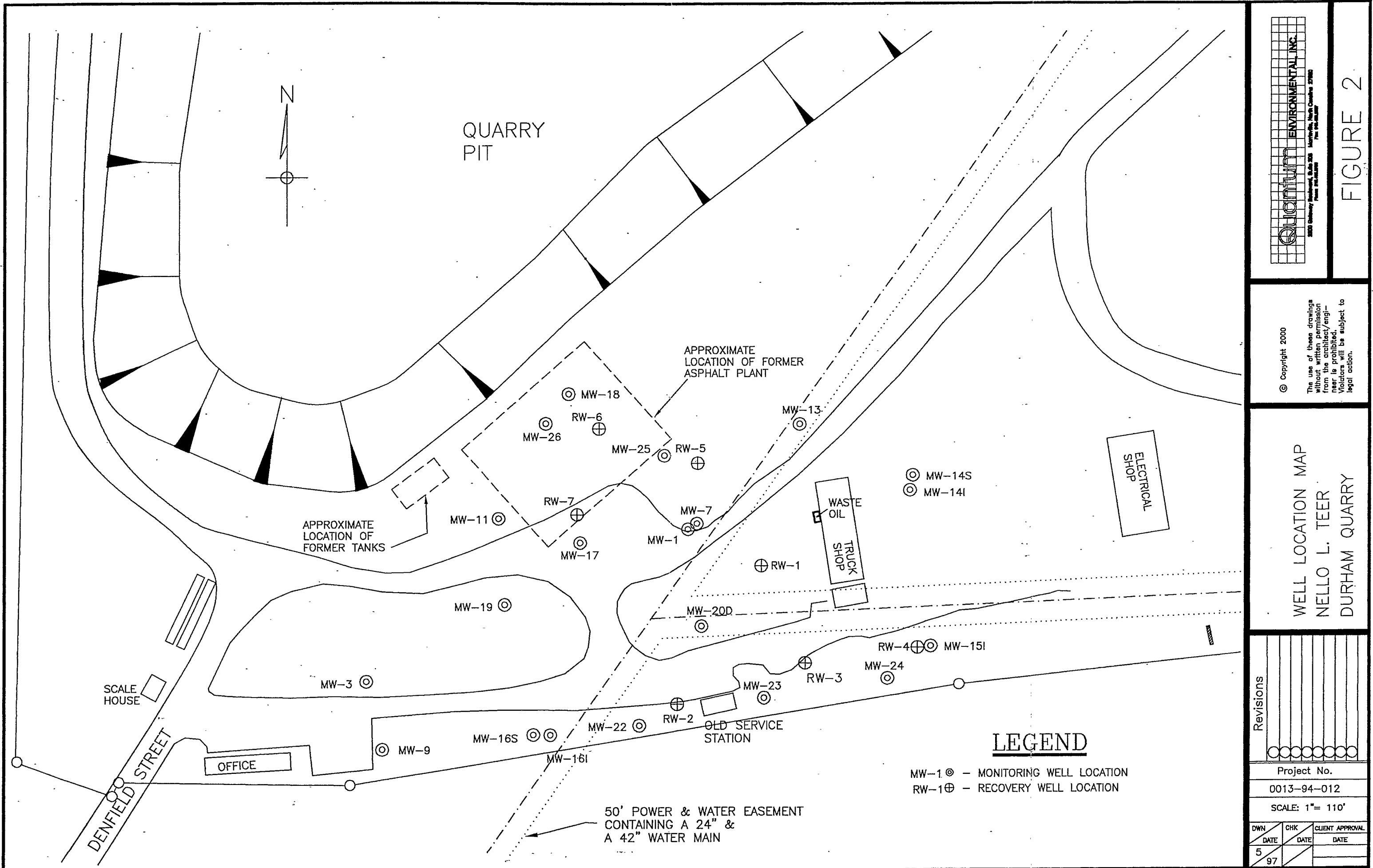
Based on measured groundwater levels in both the shallow and deep aquifers, the water table elevations have generally dropped since the last sampling event; however, the gradient and direction of flow remain relatively unchanged. The shallow aquifer indicates an average hydraulic gradient of 0.025 and flow towards the east. The deep aquifer indicates an average gradient of 0.06 ft./ft. and flow also towards the east. Analytical results indicate the levels of chlorinated hydrocarbons have decreased across the site, with the exception of vinyl chloride. Increased levels of vinyl chloride, a degradation by-product of chlorinated hydrocarbons, were detected in several wells, indicating degradation through natural processes is occurring.

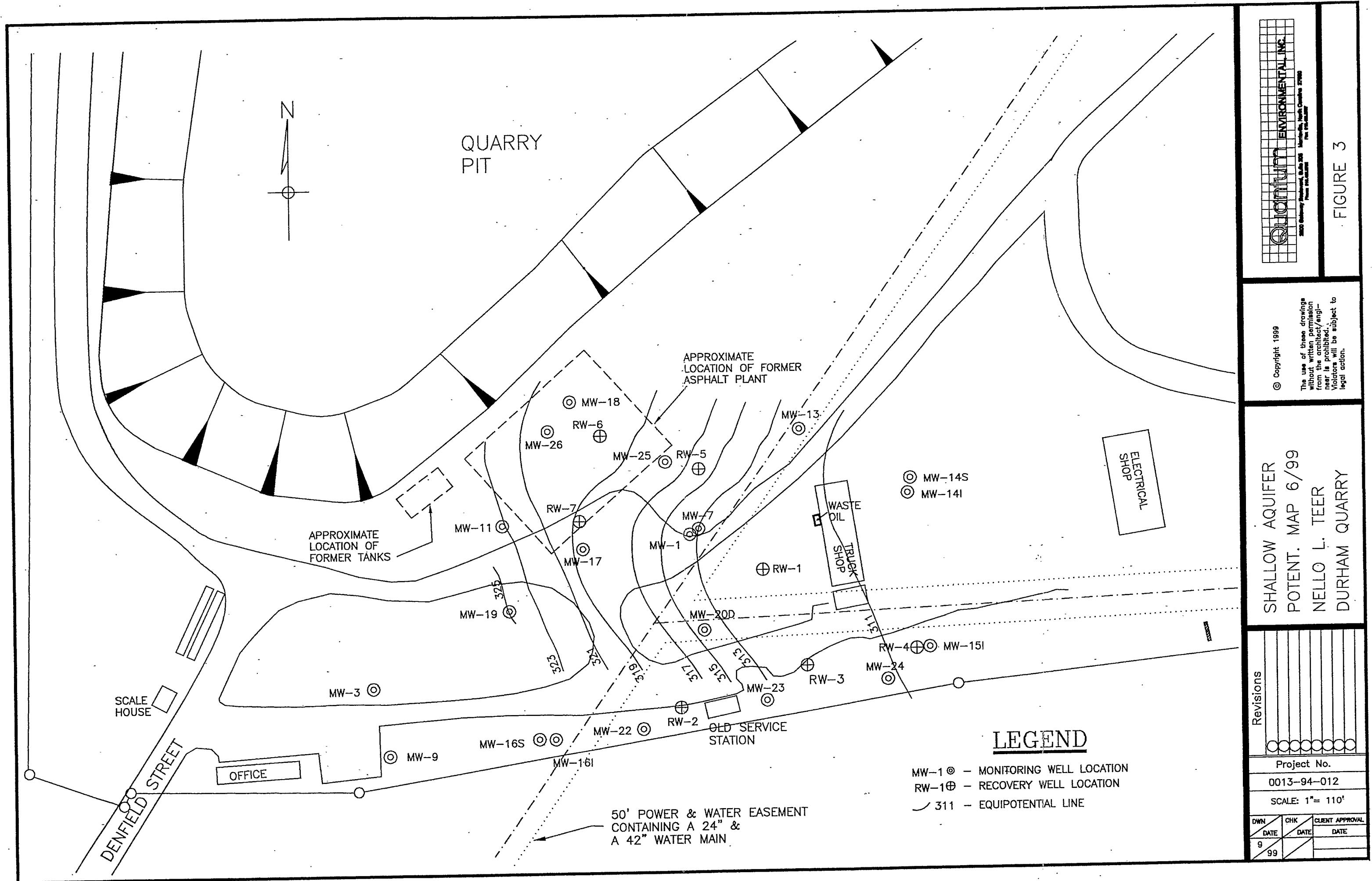
Based on the results of this biannual sampling event, Quantum recommends proceeding with the continued operation of the groundwater remediation system. Following the December 1999 biannual sampling event, Quantum expects to request a reduction in the number of wells sampled per event, as approximately one-half of the monitoring wells either no longer indicate detectable concentrations of contaminants, or have never indicated detectable concentrations.



Figures







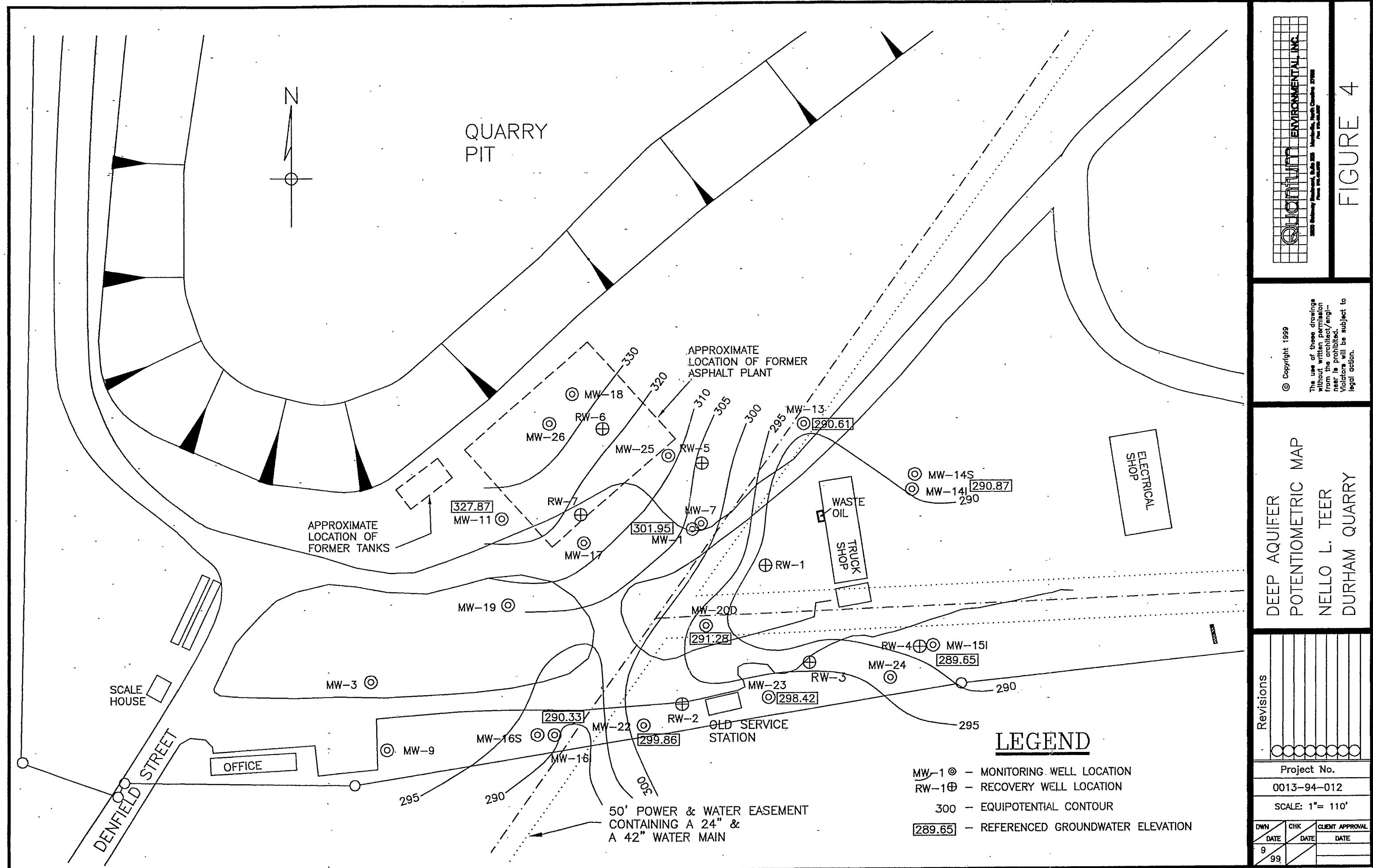
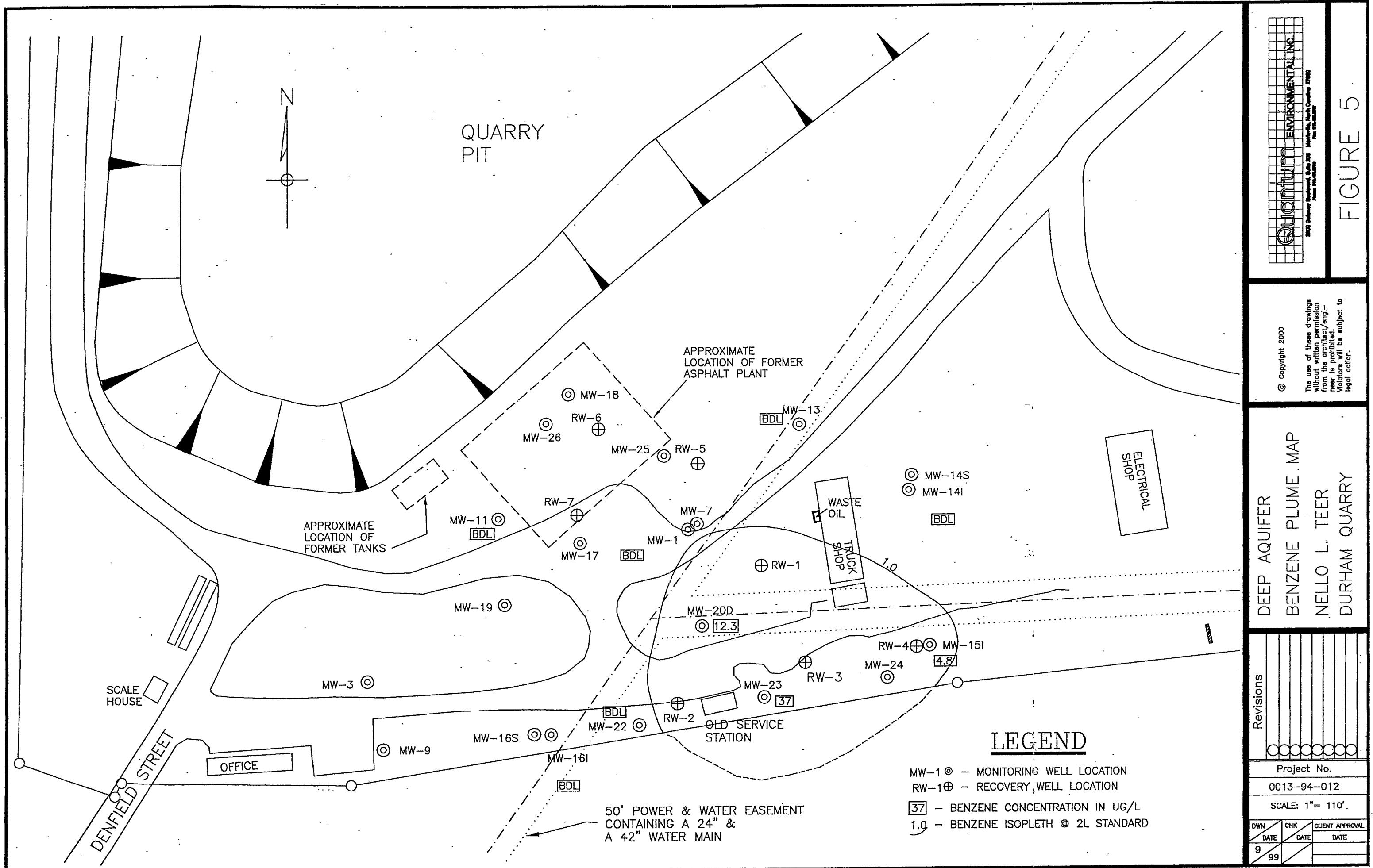
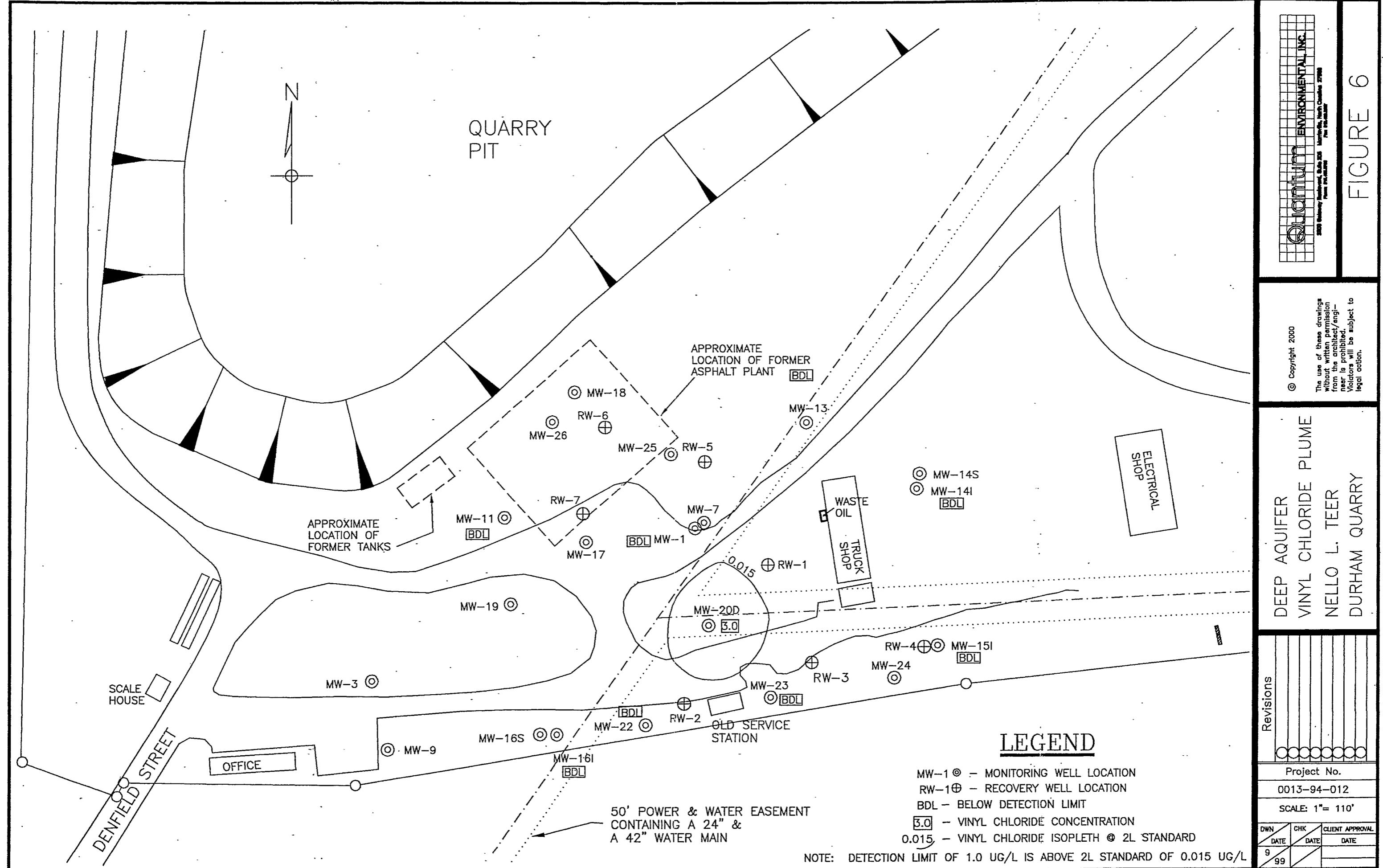
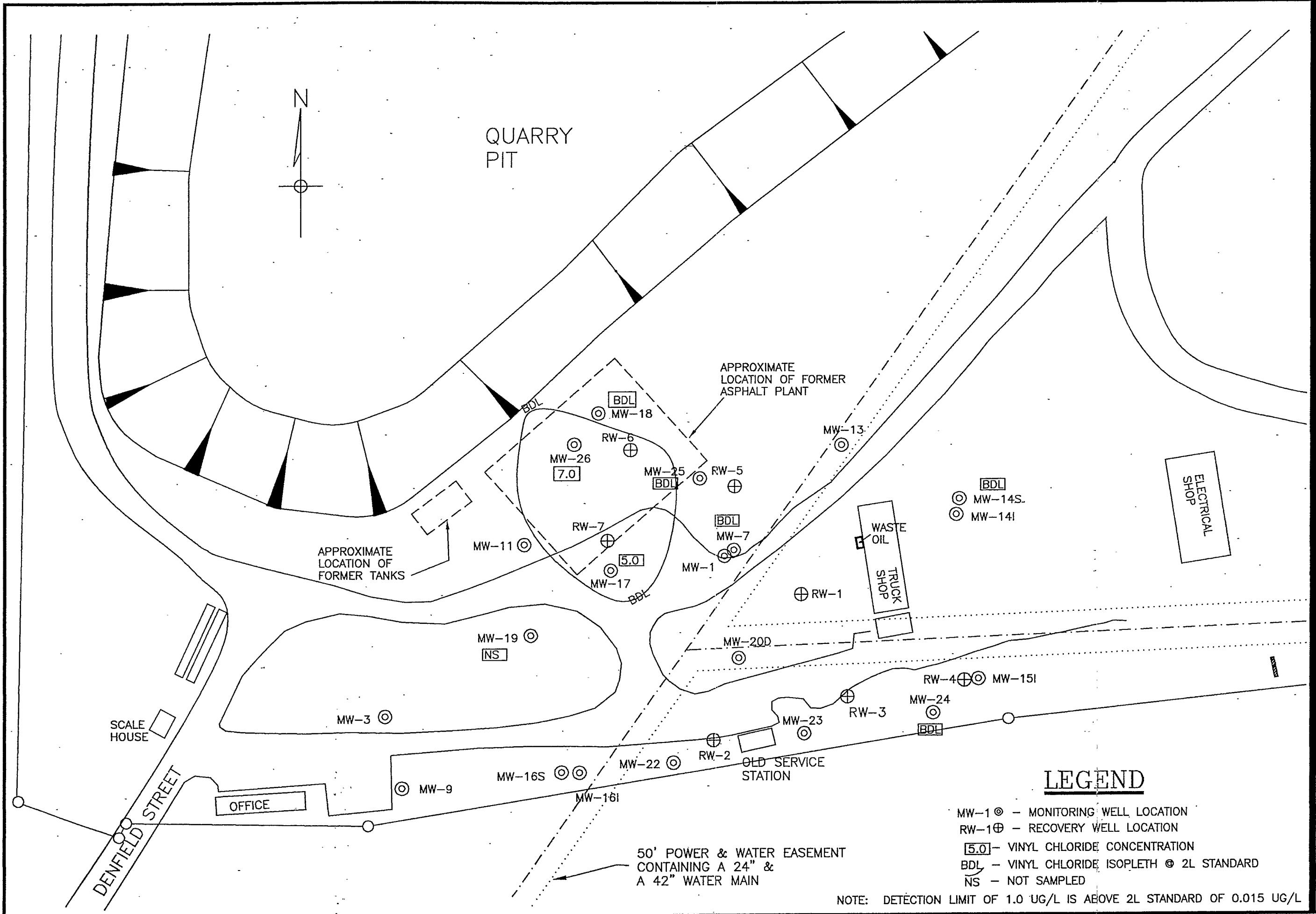


FIGURE 5







Quinton Environmental, Inc.
2000 Quarry Street, Suite 300
Montgomery, North Carolina 27620
Phone: (919) 276-1000

FIGURE 7

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**SHALLOW AQUIFER
VINYL CHLORIDE PLUME
NELLO L. TEER
DURHAM QUARRY**

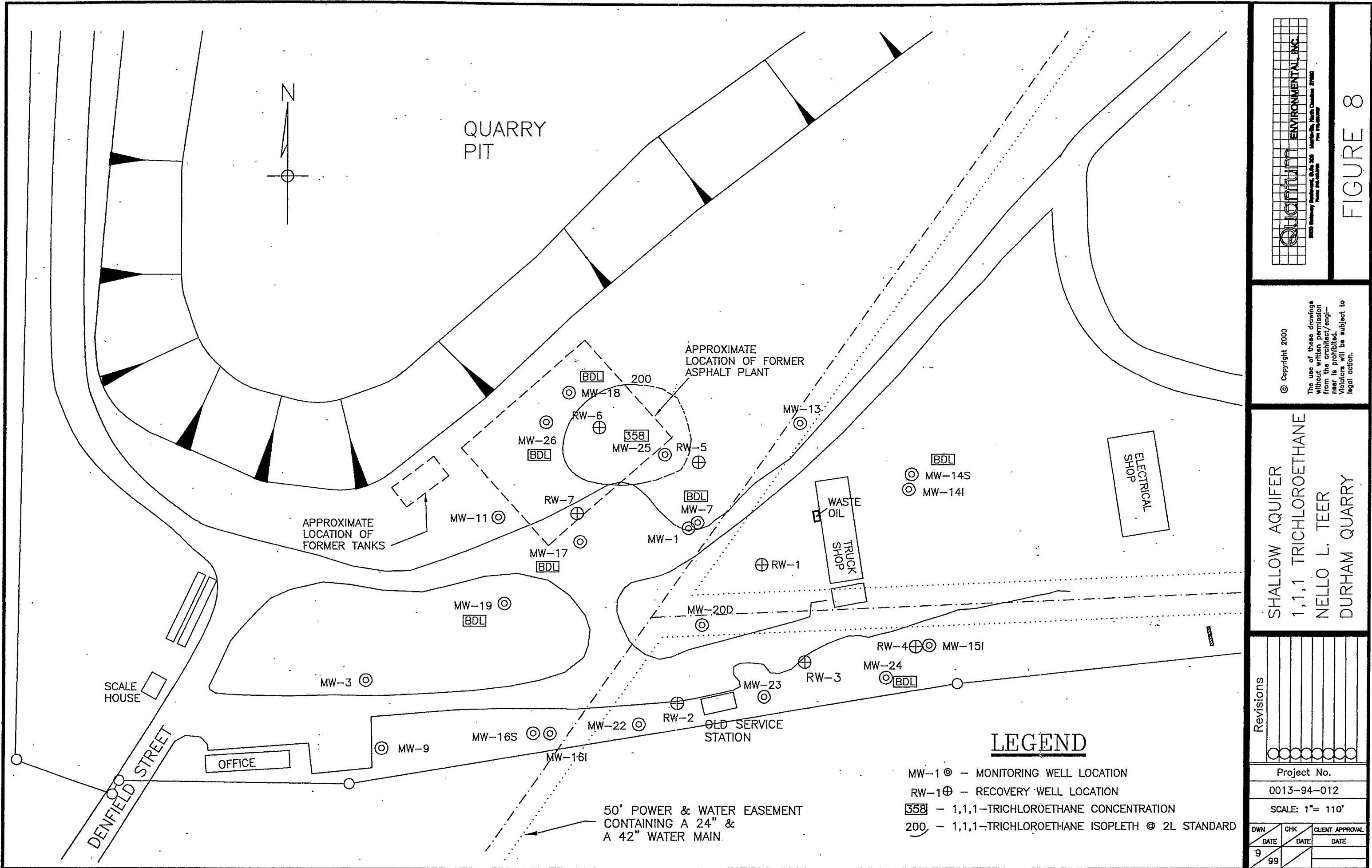
Revisions

Project No.

0013-94-012

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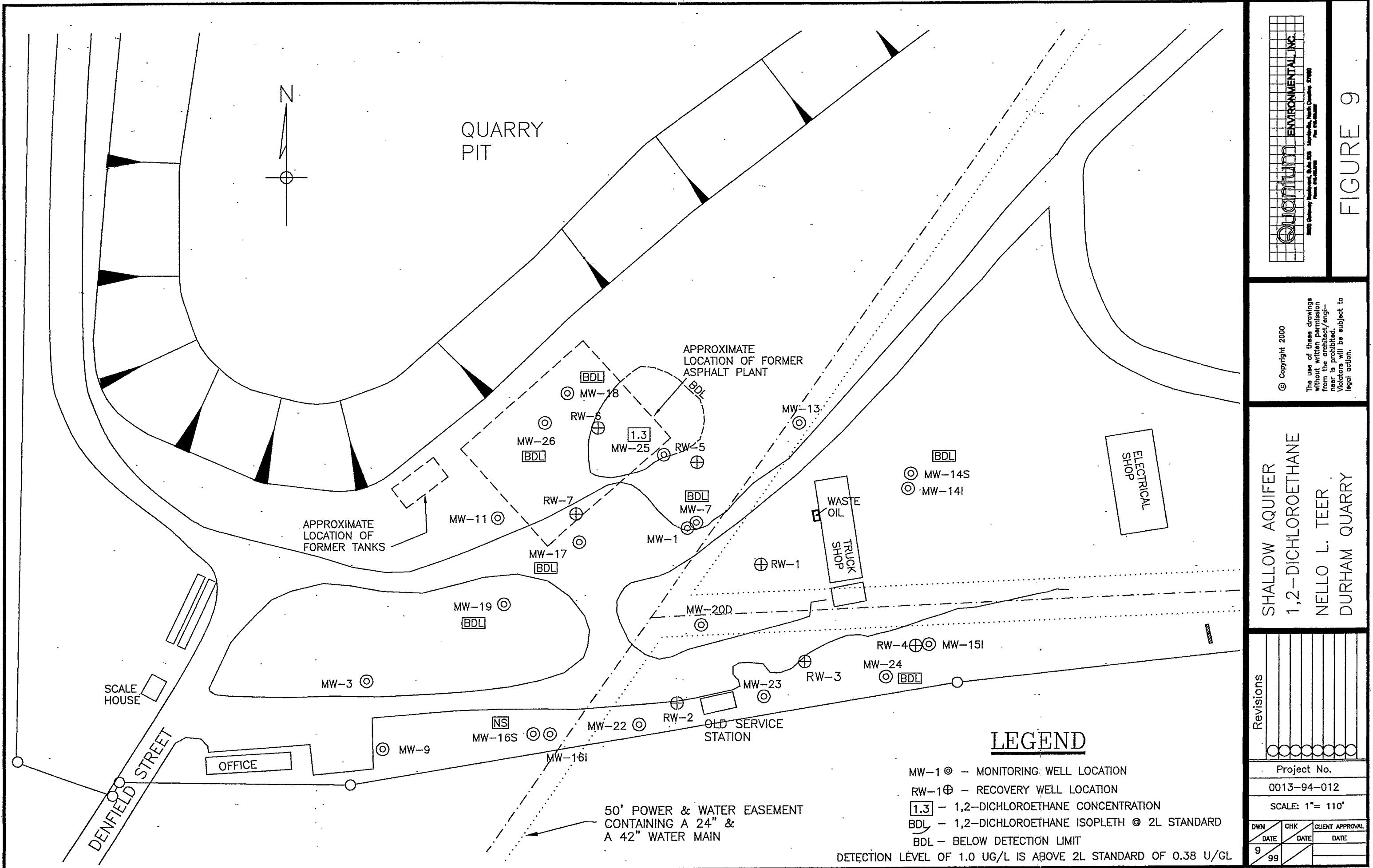
DWN	CHK	CLIENT APPROVAL
DATE	DATE	DATE
9		
99		



Quintuff Environmental Inc.
Environmental Services
Soil & Water Testing
Groundwater Monitoring
Remediation Project Management

FIGURE 8

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Tables

Tables

Table 1 **Well and Water Level Data**
June 1999 Sampling Event
Teer Quarry, Denfield St., Durham, NC

Well #	Top of Casing Elevation ^a	Screen Interval ^b	Depth to Water ^c	Water Table Elevation ^a	Purge Volume ^d
MW-1	329.5	20.0 - 35.0	27.55	301.95	5
MW-3	337.32	15.0 - 62.0	--	--	0
MW-7	329.26	9.0 - 14.0	16.17	313.09	0.25
MW-9	333.65	25.0 - 40.0	--	--	0
MW-11	327.87	35.0 - 50.0	44.33	283.54	2.75
MW-13	326.48	50.0 - 65.0	35.87	290.61	14.5
MW-14S	327.09	5.0 - 20.0	--	--	--
MW-14I	327.13	34.0 - 49.0	36.26	290.87	6
MW-15I	329.53	25.0 - 40.0	39.88	289.65	10
MW-16S	333.91	3.0 - 13.0	11.21	322.70	.25 (dry)
MW-16I	330.8	46.0 - 61.0	40.47	290.33	9.4
MW-17	327.59	2.5 - 12.5	9.26	318.33	1.5 (dry)
MW-18	328.43	3.0 - 10.0	8.22	320.21	2.75
MW-19	331.96 ^e	2.0 - 10.0	--	--	--
MW-20D	329.58	110.0 - 115.0	38.3	291.28	37
MW-22	334.19	30.0 - 60.0	42.09	299.86	8.75
MW-23	331.87	25.0 - 60.0	33.45	298.42	12.75
MW-24	337.56	16.0 - 36.0	26.18	311.38	5.5
MW-25	328.92	4.0 - 14.0	9.01	319.91	2.5
MW-26	328.92	3.0 - 13.0	8.77	320.15	2.1

^a surveyed elevation, referenced to mean sea level

^b feet below land surface

^c feet below top of casing

^d gallons

^e Well casing extended and resurveyed

Table 2 **Summary of Laboratory Analysis Results - Shallow Wells**
June 1999 Sampling Event
Teer Quarry, Denfield St., Durham, NC

Well			Ethyl-	Naph-	Chloro-	Dichloro-	Dichloro-	chloro-	Tri-	1,1,1-	cis-1,2-
Number	Benzene	Toluene	Benzene	Xylenes	thalene	Form	ethane	ethene	ethene	ethane	Vinyl chloride
MW-7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
MW-12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-14S	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-15S	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-16S	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-17	BDL	BDL	BDL	BDL	BDL	6.00	BDL	BDL	BDL	1.00	5.00
MW-18	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
MW-19	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-20S	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-24	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
MW-25	BDL	BDL	BDL	BDL	BDL	282	204	98	358	151	BDL
MW-26	BDL	BDL	BDL	BDL	BDL	3.60	4.20	BDL	BDL	5.80	7.00
NCAC 2L											
Standard	1.00	1000.00	29.00	530.00	21.00	0.19	700.00	7.00	2.80	200.00	70.00
											0.015

BDL Below Detection Limit

NS Not Sampled

a Any detectable concentration is a violation of the Standards

All results and Standards in $\mu\text{g/l}$

Analysis performed by TestAmerica.

Bold indicates exceeding Standards

Quantum Project No. 0013-94-012

Table 3 **Summary of Laboratory Analysis Results - Deep Wells**
June 1999 Sampling Event
Teer Quarry, Denfield St., Durham, NC

Well			Ethyl-		Naph-	Chloro-	Dichloro-	1,1-	1,2-	1,1-	Tri-	1,1,1-	cis-1,2	
Number	Benzene	Toluene	Benzene	Xylenes	thalene	Form	ethane	ethane	ethene	ethene	chloro-	Trichloro-	Dichloro	Vinyl
MW-1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
MW-11	BDL	BDL	BDL	BDL	BDL	BDL	1.00	BDL	BDL	1.80	BDL	22.9	BDL	BDL
MW-13	BDL	BDL	BDL	BDL	BDL	BDL	3.30	BDL	1.70	2.40	BDL	2.7	BDL	BDL
MW-14I	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
MW-15I	4.80	1.00	1.20	1.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
MW-16I	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
MW-20D	12.30	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.1	3.00	BDL
MW-22	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
MW-23	37.10	7.50	19.10	39.60	12.00	BDL	BDL	1.30	BDL	BDL	BDL	BDL	BDL	BDL
RW-1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	N	NS	NS
RW-2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	N	NS	NS
NCAC 2L														
Standard	1.00	1000.00	29.00	530.00	21.00	0.19	700.00	0.38	7.00	2.80	200.00	70.0	0.015	

BDL Below Detection Limit

a Any detectable concentration is a violation of the Standards

NS Well Not Sampled

All results and Standards in $\mu\text{g/l}$

Analysis performed by TestAmerica.

Bold indicates exceeding Standards

Quantum Project No. 0013-94-012

Table 4. Historical Ground Water Laboratory Analytical Data - thru June 1999

MW-1

Constituent	Date										2L Standard
	5/20/1993 (1)	8/29/1994 (2)	1/26/1995 (2)	4/27/1995 (2)	8/29/95 (2)	3/14/96 (2)	10/11/96 (2)	12/2/1997 (3)	5/13/98 (3)	6/17/99 (4)	
Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.00
Toluene	0.70	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1000.00
Ethylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	29.00
Xylenes	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	530.00
Naphthalene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	21.00
MTBE	BDL	NA	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA	200.00
EDB	BDL	NA	NA	NA	BDL	NA	NA	NA	NA	NA	70.00
IPE	BDL	NA	NA	NA	BDL	NA	NA	NA	NA	NA	0.07
Total PAH	BDL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	700.00
Trichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.80
cis-1,2-Dichloroethylene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	70.00
Vinyl Chloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.02
Total CVOCs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lead	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	15.00

RW-2 (former MW-2)

Constituent	Date			2L Standard
	5/7/1993 (1)	5/20/1993 (1)	8/29/1994 (2)	
Benzene	575.00	353.00	95.00	1.00
Toluene	1,160.00	418.00	19.00	1000.00
Ethylbenzene	84.40	BDL	62.00	29.00
Xylenes	1,425.00	106.00	61.00	530.00
Naphthalene	NA	NA	2.78	21.00
MTBE	NA	BDL	NA	200.00
EDB	NA	BDL	NA	70.00
IPE	NA	BDL	NA	0.07
Total PAH	BDL	BDL	NA	
1,1-Dichloroethane	NA	BDL	BDL	700.00
Trichloroethene	NA	BDL	BDL	2.80
cis-1,2-Dichloroethylene	NA	NA	90.00	70.00
Vinyl Chloride	NA	BDL	BDL	0.02
Total CVOCs	0.00	0.00	90.00	
Lead	<0.05	0.20	NA	15.00

Table 4. Historical Ground Water Laboratory Analytical Data - thru June 1999

MW-3

Constituent	Date				2L Standard
	5/21/1993 (1)	8/29/1994 (2)	1/26/1995 (2)	4/27/1995 (2)	
Benzene	BDL	BDL	BDL	BDL	1.00
Toluene	BDL	BDL	BDL	BDL	1000.00
Ethylbenzene	BDL	BDL	BDL	BDL	29.00
Xylenes	BDL	BDL	BDL	BDL	530.00
Naphthalene	BDL	BDL	BDL	NA	21.00
MTBE	BDL	BDL	BDL	NA	200.00
EDB	BDL	NA	NA	NA	70.00
IPE	BDL	NA	NA	NA	0.07
Total PAH	BDL	NA	NA	NA	
1,1-Dichloroethane	BDL	BDL	BDL	BDL	700.00
Trichloroethene	BDL	BDL	BDL	BDL	2.80
cis-,1,2-Dichloroethylene	BDL	BDL	BDL	BDL	70.00
Vinyl Chloride	BDL	BDL	BDL	BDL	0.02
Total CVOCs	0.00	0.00	0.00	0.00	
Lead	0.056	NA	NA	NA	15.00

MW-4

Constituent	Date	2L Standard
	5/18/1993 (1)	
Benzene	BDL	1.00
Toluene	0.70	1000.00
Ethylbenzene	BDL	29.00
Xylenes	BDL	530.00
Naphthalene	BDL	21.00
MTBE	BDL	200.00
EDB	BDL	70.00
IPE	BDL	0.07
Total PAH	BDL	
1,1-Dichloroethane	BDL	700.00
Trichloroethene	BDL	2.80
cis-,1,2-Dichloroethylene	BDL	70.00
Vinyl Chloride	BDL	0.02
Total CVOCs	0.00	
Lead	0.50	15.00

Table 4. Historical Ground Water Laboratory Analytical Data - thru June 1999

MW-5

Constituent	Date	2L Standard	
	5/7/1993 (1)	5/20/1993 (1)	
Benzene	BDL	BDL	1.00
Toluene	BDL	BDL	1000.00
Ethylbenzene	BDL	BDL	29.00
Xylenes	BDL	BDL	530.00
Naphthalene	NA	BDL	21.00
MTBE	NA	BDL	200.00
EDB	NA	BDL	70.00
IPE	NA	BDL	0.07
Total PAH	BDL	0.00	
1,1-Dichloroethane	NA	BDL	700.00
Trichloroethene	NA	BDL	2.80
cis-,1,2-Dichloroethylene	NA	BDL	70.00
Vinyl Chloride	NA	BDL	0.02
Total CVOCs	0.00	0.00	
Lead	NA	0.07	15.00

MW-6

Constituent	Date	2L Standard	
	5/21/1993 (1)		
Benzene	BDL	1.00	
Toluene	BDL	1000.00	
Ethylbenzene	BDL	29.00	
Xylenes	BDL	530.00	
Naphthalene	BDL	21.00	
MTBE	BDL	200.00	
EDB	BDL	70.00	
IPE	BDL	0.07	
Total PAH	NA		
1,1-Dichloroethane	BDL	700.00	
Trichloroethene	BDL	2.80	
cis-,1,2-Dichloroethylene	BDL	70.00	
Vinyl Chloride	BDL	0.02	
Total CVOCs	0.00		
Lead	0.03	15.00	

Table 4. Historical Ground Water Laboratory Analytical Data - thru June 1999

MW-7

Constituent	Date										2L Standard
	5/21/1993 (1)	8/29/1994 (2)	1/26/1995 (2)	8/29/95 (2)	4/27/1995(2)	3/14/96 (2)	10/11/96 (2)	12/2/1997 (3)	5/13/98 (3)	6/17/99 (4)	
Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.00
Toluene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1000.00
Ethylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	29.00
Xylenes	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	530.00
Naphthalene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	21.00
MTBE	BDL	NA	NA	BDL	NA	NA	NA	BDL	BDL	NA	200.00
EDB	BDL	NA	NA	BDL	NA	NA	NA	NA	NA	NA	70.00
IPE	BDL	NA	NA	BDL	NA	NA	NA	NA	NA	NA	0.07
Total PAH	BDL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	700.00
Trichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.80
cis-,1,2-Dichloroethylene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	70.00
Vinyl Chloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.02
Total CVOCs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lead	0.02	NA	NA	NA	NA	NA	NA	NA	NA	NA	15.00

MW-8

Constituent	Date	2L Standard
5/19/1993 (1)		
Benzene	BDL	1.00
Toluene	BDL	1000.00
Ethylbenzene	BDL	29.00
Xylenes	BDL	530.00
Naphthalene	BDL	21.00
MTBE	BDL	200.00
EDB	BDL	70.00
IPE	BDL	0.07
Total PAH	BDL	
1,1-Dichloroethane	BDL	700.00
Trichloroethene	BDL	2.80
cis-,1,2-Dichloroethylene	BDL	70.00
Vinyl Chloride	BDL	0.02
Total CVOCs	0.00	
Lead	<0.05	15.00

Table 4. Historical Ground Water Laboratory Analytical Data - thru June 1999

Table MW-9

Constituent	Date				2L Standard
	9/9/1993 (1)	8/30/1994 (2)	1/25/1995 (2)	4/27/1995 (2)	
Benzene	BDL	BDL	BDL	BDL	1.00
Toluene	BDL	BDL	BDL	BDL	1000.00
Ethylbenzene	BDL	BDL	BDL	BDL	29.00
Xylenes	BDL	BDL	BDL	BDL	530.00
Naphthalene	BDL	BDL	BDL	BDL	21.00
MTBE	BDL	NA	NA	NA	200.00
EDB	BDL	NA	NA	NA	70.00
IPE	BDL	NA	NA	NA	0.07
Total PAH	BDL	NA	NA	NA	
1,1-Dichloroethane	BDL	BDL	BDL	BDL	700.00
Trichloroethene	BDL	BDL	BDL	BDL	2.80
cis-,1,2-Dichloroethylene	BDL	BDL	BDL	1.30	70.00
Vinyl Chloride	BDL	BDL	BDL	BDL	0.02
Total CVOCs	0.00	0.00	0.00	1.30	
Lead	<0.05	NA	NA	NA	15.00

MW-11

Table 4. Historical Ground Water Laboratory Analytical Data - thru June 1999

Table 4.

MW-12

Constituent	Date				2L Standard
	9/9/1993 (1)	8/30/1994(2)	1/26/1995(2)	4/27/1995 (2)	
Benzene	BDL	BDL	BDL	BDL	1.00
Toluene	BDL	BDL	BDL	BDL	1000.00
Ethylbenzene	BDL	BDL	BDL	BDL	29.00
Xylenes	BDL	BDL	BDL	BDL	530.00
Naphthalene	BDL	BDL	BDL	BDL	21.00
MTBE	BDL	NA	NA	NA	200.00
EDB	BDL	NA	NA	NA	70.00
IPEx	BDL	NA	NA	NA	0.07
Total PAH	BDL	NA	NA	NA	
1,1-Dichloroethane	BDL	BDL	BDL	BDL	700.00
Trichloroethene	BDL	BDL	BDL	BDL	2.80
cis-,1,2-Dichloroethylene	BDL	BDL	BDL	BDL	70.00
Vinyl Chloride	BDL	BDL	BDL	BDL	0.02
Total CVOCs	0.00	0.00	0.00	0.00	
Lead	<0.05	NA	NA	NA	15.00

MW-13

Table 4. Historical Ground Water Laboratory Analytical Data - thru June 1999

MW-14S

MW-14I

Constitue

Table 4. Historical Ground Water Laboratory Analytical Data - thru June 1999

MW-15S

Constituent	Date					2L Standard
	9/9/1993 (1)	8/31/1994 (2)	1/26/1995 (2)	4/27/1995 (2)	8/30/95 (2)	
Benzene	10.70	17.50	BDL	BDL	BDL	1.00
Toluene	8.80	2.60	BDL	BDL	BDL	1000.00
Ethylbenzene	76.40	147.00	43.00	56.30	77.70	29.00
Xylenes	NA	430.00	170.00	188.00	205.00	530.00
Naphthalene	13.00	63.30	60.90	53.40	27.60	21.00
MTBE	8.30	NA	NA	NA	BDL	200.00
EDB	BDL	NA	NA	NA	BDL	70.00
IPE	BDL	NA	NA	NA	BDL	0.07
Total PAH	13.00	NA	NA	NA	NA	
1,1-Dichloroethane	BDL	BDL	BDL	BDL	BDL	700.00
Trichloroethene	BDL	BDL	BDL	BDL	BDL	2.80
cis-1,2-Dichloroethylene	BDL	BDL	BDL	BDL	BDL	70.00
Vinyl Chloride	BDL	BDL	BDL	BDL	BDL	0.02
Total CVOCs	0.00	0.00	0.00	0.00	0.00	
Lead	<0.05	NA	NA	NA	NA	15.00

MW-15I

Table 4. Historical Ground Water Laboratory Analytical Data - thru June 1999

Table 4.
MW-16S

Constituent	Date							2L Standard
	9/9/1993 (1)	8/30/1994 (2)	1/25/95 (2)	4/27/1995 (2)	3/14/96 (2)	10/9/96 (2)	5/13/98 (3)	
Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.00
Toluene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1000.00
Ethylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	29.00
Xylenes	BDL	BDL	BDL	BDL	BDL	BDL	BDL	530.00
Naphthalene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	21.00
MTBE	BDL	NA	NA	NA	NA	NA	BDL	200.00
EDB	BDL	NA	NA	NA	NA	NA	NA	70.00
IPE	BDL	NA	NA	NA	NA	NA	NA	0.07
Total PAH	BDL	NA	NA	NA	NA	NA	NA	
1,1-Dichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	700.00
Trichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.80
cis-,1,2-Dichloroethylene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	70.00
Vinyl Chloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.02
Total CVOCs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Lead	<0.05	NA	NA	NA	NA	NA	NA	15.00

MW-16I

Table 4. Historical Ground Water Laboratory Analytical Data - thru June 1999

MW-17

MW-18

Table 4. Historical Ground Water Laboratory Analytical Data - thru June 1999

MW-19

Constituent	Date							2L Standard
	9/9/1993 (1)	8/30/1994 (2)	1/31/1995 (2)	4/27/1995 (2)	3/14/96 (2)	10/9/96 (2)	12/2/1997 (3)	
Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.00
Toluene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1000.00
Ethylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	29.00
Xylenes	BDL	BDL	BDL	BDL	BDL	BDL	BDL	530.00
Naphthalene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	21.00
MTBE	BDL	NA	NA	NA	NA	NA	BDL	200.00
EDB	BDL	NA	NA	NA	NA	NA	NA	70.00
IPE	BDL	NA	NA	NA	NA	NA	NA	0.07
Total PAH	BDL	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	700.00
Trichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.80
cis-,1,2-Dichloroethylene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	70.00
Vinyl Chloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.02
Total CVOCs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Lead	<0.05	NA	NA	NA	NA	NA	NA	15.00

MW-20S

Constituent	Date						2L Standard
	9/9/1993 (1)	8/30/1994 (2)	1/25/1995 (2)	4/27/1995 (2)	8/30/95 (2)	3/14/96 (2)	
Benzene	15.00	64.40	44.00	71.80	64.40	64.90	1.00
Toluene	1.80	9.50	6.20	BDL	26.00	2.40	1000.00
Ethylbenzene	BDL	16.38	7.00	14.60	25.30	5.90	29.00
Xylenes	BDL	21.00	16.70	20.60	80.70	17.00	530.00
Naphthalene	BDL	3.84	3.29	4.90	BDL	4.50	21.00
MTBE	7.30	NA	NA	NA	9.69	NA	200.00
EDB	BDL	NA	NA	NA	BDL	NA	70.00
IPE	14.20	NA	NA	NA	50.00	NA	0.07
Total PAH	BDL	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	700.00
Trichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	2.80
cis-,1,2-Dichloroethylene	BDL	BDL	BDL	BDL	BDL	BDL	70.00
Vinyl Chloride	BDL	BDL	BDL	BDL	BDL	BDL	0.02
Total CVOCs	0.00	0.00	0.00	0.00	0.00	0.00	
Lead	<0.05	NA	NA	NA	NA	NA	15.00

Table 4. Historical Ground Water Laboratory Analytical Data - thru June 1999

MW-20D

Constituent	Date										2L Standard
	9/9/1993 (1)	8/31/1994 (2)	1/25/1995 (2)	4/27/1995 (2)	8/30/95 (2)	3/15/96 (2)	10/11/96 (2)	12/2/1997 (3)	5/13/98 (3)	6/17/99 (4)	
Benzene	15.00	30.00	22.00	29.80	30.30	20.00	21.60	16.00	13.00	12.30	1.00
Toluene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1000.00
Ethylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	29.00
Xylenes	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.10	BDL	BDL	530.00
Naphthalene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	3.40	BDL	BDL	21.00
MTBE	6.20	NA	NA	NA	BDL	NA	NA	5.70	4.30	NA	200.00
EDB	BDL	NA	NA	NA	BDL	NA	NA	NA	NA	NA	70.00
IPE	14.20	NA	NA	NA	26.60	NA	NA	NA	NA	NA	0.07
Total PAH	BDL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	700.00
Trichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.80
cis-,1,2-Dichloroethylene	BDL	8.00	BDL	5.20	5.47	4.00	BDL	BDL	BDL	BDL	1.10
Vinyl Chloride	BDL	BDL	BDL	BDL	BDL	4.30	BDL	1.70	3.20	3.00	0.02
Total CVOCs	0.00	8.00	0.00	5.20	5.47	8.30	0.00	1.70	3.20	4.10	
Lead	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	15.00

MW-21

Constituent	Date					2L Standard
	9/9/1993 (1)	8/30/1994 (2)	1/26/1995 (2)	4/27/1995 (2)	3/15/96 (2)	
Benzene	BDL	BDL	BDL	BDL	BDL	1.00
Toluene	BDL	BDL	BDL	BDL	BDL	1000.00
Ethylbenzene	BDL	BDL	BDL	BDL	BDL	29.00
Xylenes	BDL	BDL	BDL	BDL	BDL	530.00
Naphthalene	BDL	BDL	BDL	BDL	BDL	21.00
MTBE	BDL	NA	NA	NA	NA	200.00
EDB	BDL	NA	NA	NA	NA	70.00
IPE	BDL	NA	NA	NA	NA	0.07
Total PAH	BDL	NA	NA	NA	NA	NA
1,1-Dichloroethane	BDL	BDL	BDL	BDL	BDL	700.00
Trichloroethene	BDL	BDL	BDL	BDL	BDL	2.80
cis-,1,2-Dichloroethylene	BDL	BDL	BDL	BDL	BDL	70.00
Vinyl Chloride	BDL	BDL	BDL	BDL	BDL	0.02
Total CVOCs	0.00	0.00	0.00	0.00	0.00	
Lead	<0.05	NA	NA	NA	NA	15.00

Table 4. Historical Ground Water Laboratory Analytical Data - thru June 1999

MW-22

MW-23

Table 4. Historical Ground Water Laboratory Analytical Data - thru June 1999

MW-24

MW-25

Table 4. Historical Ground Water Laboratory Analytical Data - thru June 1999

MW-26

Constituent	Date								2L Standard
	8/29/1994 (2)	1/26/1995 (2)	4/27/1995 (2)	8/29/95 (2)	3/13/96 (2)	10/9/96 (2)	12/2/97 (3)	5/13/98 (3)	
Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.00
Toluene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1000.00
Ethylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	29.00
Xylenes	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	530.00
Naphthalene	BDL	42.50	BDL	BDL	BDL	BDL	BDL	BDL	21.00
MTBE	NA	NA	NA	BDL	NA	NA	BDL	BDL	200.00
EDB	NA	NA	NA	BDL	NA	NA	BDL	NA	70.00
IPE	NA	NA	NA	BDL	NA	NA	BDL	NA	0.07
Total PAH	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	BDL	100.00	109.00	85.40	BDL	54.30	13.00	5.60	3.60
1,1-Dichloroethene	BDL	BDL	8.10	10.70	13.60	7.17	5.20	3.60	4.20
Trichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.80
cis-,1,2-Dichloroethylene	BDL	BDL	4.90	5.83	8.30	BDL	BDL	BDL	5.80
Vinyl Chloride	29.50	BDL	BDL	44.80	56.60	20.10	12.00	6.90	7.00
Total CVOCs	29.50	100.00	122.00	146.73	78.50	81.57	30.20	16.10	20.60
Lead	NA	NA	NA	NA	NA	NA	NA	NA	15.00

MW-27

Constituent	Date		2L Standard
	9/9/1993 (1)	8/29/1994 (2)	
Benzene	BDL	BDL	1.00
Toluene	BDL	BDL	1000
Ethylbenzene	BDL	BDL	29
Xylenes	BDL	BDL	530
Naphthalene	BDL	BDL	21
MTBE	BDL	NA	200
EDB	BDL	NA	70
IPE	BDL	NA	0.07
Total PAH	0.00	NA	
1,1-Dichloroethane	BDL	BDL	700
Trichloroethene	BDL	BDL	2.8
cis-,1,2-Dichloroethylene	BDL	BDL	70
Vinyl Chloride	BDL	BDL	0.02
Total CVOCs	0.00	0.00	
Lead	0.05	NA	15

NOTES: (1) = EPA Methods 601/602/625 Total PAH/239.2 Lead as sampled by Geogenetics; analyzed by Southern Testing
(2) = EPA Methods 601/602/610 as sampled by Front Royal (Quantum); analyzed by Hydrologic
(3) = EPA Methods 601/602/610 as sampled by Front Royal (Quantum); analyzed by Pace Laboratories
(4) = EPA Methods 601/602/610 as sampled by Front Royal (Quantum); analyzed by Test America
(*) = Summation of All Fractions of Detected PAHs including naphthalene.

Appendix A

Appendix A
Laboratory Analytical Report
and
Chain of Custody Form



Environmental
LABORATORY SERVICES

7280 Caswell Street, Hancock Air Park, North Syracuse, NY 13212
(315) 458-8033, FAX (315) 458-0249, (800) 842-4667

Certified in:
• Connecticut
• Delaware
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QUANTUM ENVIRONMENTAL, INC.
2200 GATEWAY BLVD., SUITE 205

PROJECT #: 991541
RECEIVED: 06/18/99

MORRISVILLE NC 27560
ATTN: MR. CHARLES ROSS

DUPLICATE COPY 08/05/99

P.O. #
CLIENT JOB NUMBER: 001394012

TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168087 CLIENT SAMPLE ID: MW-1				DATE SAMPLED: 06/18/99	
SEMIVOL. ORGANICS - PAH		UG/L	06/27/99	EPA 610	387 (NC)
ACENAPHTHENE	<5.0				
ACENAPHTHYLENE	<5.0				
ANTHRACENE	<5.0				
BENZO(A)ANTHRACENE	<5.0				
BENZO(B)FLUORANTHENE	<5.0				
BENZO(K)FLUORANTHENE	<5.0				
BENZO(G,H,I)PERYLENE	<5.0				
BENZO(A)PYRENE	<5.0				
CHRYSENE	<5.0				
DIBENZO(A,H)ANTHRACENE	<5.0				
FLUORANTHENE	<5.0				
FLUORENE	<5.0				
INDENO(1,2,3-CD)PYRENE	<5.0				
NAPHTHALENE	<5.0				
PHENANTHRENE	<5.0				
PYRENE	<5.0				
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
BROMODICHLOROMETHANE	<1.0				
BROMOFORM	<1.0				
BROMOMETHANE	<1.0				
CARBON TETRACHLORIDE	<1.0				
CHLOROETHANE	<1.0				
CHLOROFORM	<1.0				
CHLOROMETHANE	<1.0				
2-CHLOROETHYL VINYL ETHER	<1.0				
DIBROMOCHLOROMETHANE	<1.0				
DICHLORODIFLUOROMETHANE	<1.0				
1,1-DICHLOROETHANE	<1.0				
1,2-DICHLOROETHANE	<1.0				
1,1-DICHLOROETHENE	<1.0				

QUANTUM ENVIRONMENTAL, INC.
2200 GATEWAY BLVD., SUITE 205

PROJECT #: 991541
RECEIVED: 06/18/99

MORRISVILLE NC 27560
ATTN: MR. CHARLES ROSS

DUPLICATE COPY 08/05/99

P.O. #
CLIENT JOB NUMBER: 001394012

TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168087 CLIENT SAMPLE ID: MW-1			DATE SAMPLED: 06/18/99		
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
TRANS-1,2-DICHLOROETHENE	<1.0				
1,2-DICHLOROPROPANE	<1.0				
CIS-1,3-DICHLOROPROPENE	<1.0				
TRANS-1,3-DICHLOROPROPENE	<1.0				
METHYLENE CHLORIDE	<5.0				
1,1,2,2-TETRACHLOROETHANE	<1.0				
TETRACHLOROETHENE	<1.0				
1,1,1-TRICHLOROETHANE	<1.0				
1,1,2-TRICHLOROETHANE	<1.0				
TRICHLOROFLUOROMETHANE	<1.0				
TRICHLOROETHENE	<1.0				
VINYL CHLORIDE	<1.0				
BENZENE	<1.0				
CHLOROBENZENE	<1.0				
1,2-DICHLOROBENZENE	<1.0				
1,3-DICHLOROBENZENE	<1.0				
1,4-DICHLOROBENZENE	<1.0				
ETHYLBENZENE	<1.0				
TOLUENE	<1.0				
XYLENES (TOTAL)	<1.0*				
CIS-1,2-DICHLOROETHENE	<1.0				

* m+p-xylenes: <1.0 ug/L
o-xylene : <1.0 ug/L

SAMPLE #: 168088 CLIENT SAMPLE ID: MW-7 DATE SAMPLED: 06/18/99

SEMVOL. ORGANICS - PAH		UG/L	06/27/99	EPA 610	387 (NC)
ACENAPHTHENE	<6.2				
ACENAPHTHYLENE	<6.2				
ANTHRACENE	<6.2				



QUANTUM ENVIRONMENTAL, INC.
2200 GATEWAY BLVD., SUITE 205

PROJECT #: 991541
RECEIVED: 06/18/99

MORRISVILLE NC 27560
ATTN: MR. CHARLES ROSS

DUPLICATE COPY 08/05/99

P.O. #
CLIENT JOB NUMBER: 001394012

TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168088 CLIENT SAMPLE ID: MW-7				DATE SAMPLED: 06/18/99	
SEMIVOL. ORGANICS - PAH		UG/L	06/27/99	EPA 610	387 (NC)
BENZO(A)ANTHRACENE	<6.2				
BENZO(B)FLUORANTHENE	<6.2				
BENZO(K)FLUORANTHENE	<6.2				
BENZO(G,H,I)PERYLENE	<6.2				
BENZO(A)PYRENE	<6.2				
CHRYSENE	<6.2				
DIBENZO(A,H)ANTHRACENE	<6.2				
FLUORANTHENE	<6.2				
FLUORENE	<6.2				
INDENO(1,2,3-CD)PYRENE	<6.2				
NAPHTHALENE	<6.2				
PHENANTHRENE	<6.2				
PYRENE	<6.2				
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
BROMODICHLOROMETHANE	<1.0				
BROMOFORM	<1.0				
BROMOMETHANE	<1.0				
CARBON TETRACHLORIDE	<1.0				
CHLOROETHANE	<1.0				
CHLOROFORM	<1.0				
CHLOROMETHANE	<1.0				
2-CHLOROETHYL VINYL ETHER	<1.0				
DIBROMOCHLOROMETHANE	<1.0				
DICHLORODIFLUOROMETHANE	<1.0				
1,1-DICHLOROETHANE	<1.0				
1,2-DICHLOROETHANE	<1.0				
1,1-DICHLOROETHENE	<1.0				
TRANS-1,2-DICHLOROETHENE	<1.0				
1,2-DICHLOROPROPANE	<1.0				
CIS-1,3-DICHLOROPROPENE	<1.0				



QUANTUM ENVIRONMENTAL, INC.
2200 GATEWAY BLVD., SUITE 205

PROJECT #: 991541
RECEIVED: 06/18/99

MORRISVILLE NC 27560
ATTN: MR. CHARLES ROSS

DUPLICATE COPY 08/05/99

P.O. #
CLIENT JOB NUMBER: 001394012

TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168088 CLIENT SAMPLE ID: MW-7			DATE SAMPLED: 06/18/99		
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
TRANS-1,3-DICHLOROPROPENE	<1.0				
METHYLENE CHLORIDE	<5.0				
1,1,2,2-TETRACHLOROETHANE	<1.0				
TETRACHLOROETHENE	<1.0				
1,1,1-TRICHLOROETHANE	<1.0				
1,1,2-TRICHLOROETHANE	<1.0				
TRICHLOROFLUOROMETHANE	<1.0				
TRICHLOROETHENE	<1.0				
VINYL CHLORIDE	<1.0				
BENZENE	<1.0				
CHLOROBENZENE	<1.0				
1,2-DICHLOROBENZENE	<1.0				
1,3-DICHLOROBENZENE	<1.0				
1,4-DICHLOROBENZENE	<1.0				
ETHYLBENZENE	<1.0				
TOLUENE	<1.0				
XYLENES (TOTAL)	<1.0*				
CIS-1,2-DICHLOROETHENE	<1.0				
* m+p-xlenes: <1.0 ug/L o-xylene : <1.0 ug/L					
SAMPLE #: 168089 CLIENT SAMPLE ID: MW-11			DATE SAMPLED: 06/18/99		
SEMOVOL. ORGANICS - PAH		UG/L	06/27/99	EPA 610	387 (NC)
ACENAPHTHENE	<5.9				
ACENAPHTHYLENE	<5.9				
ANTHRACENE	<5.9				
BENZO(A)ANTHRACENE	<5.9				
BENZO(B)FLUORANTHENE	<5.9				
BENZO(K)FLUORANTHENE	<5.9				



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CLIENT JOB NUMBER: 001394012

TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168089 CLIENT SAMPLE ID: MW-11			DATE SAMPLED: 06/18/99		
SEMIVOL. ORGANICS - PAH		UG/L	06/27/99	EPA 610	387 (NC)
BENZO(G,H,I)PERYLENE	<5.9				
BENZO(A)PYRENE	<5.9				
CHRYSENE	<5.9				
DIBENZO(A,H)ANTHRACENE	<5.9				
FLUORANTHENE	<5.9				
FLUORENE	<5.9				
INDENO(1,2,3-CD)PYRENE	<5.9				
NAPHTHALENE	<5.9				
PHENANTHRENE	<5.9				
PYRENE	<5.9				
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
BROMODICHLOROMETHANE	<1.0				
BROMOFORM	<1.0				
BROMOMETHANE	<1.0				
CARBON TETRACHLORIDE	<1.0				
CHLOROETHANE	<1.0				
CHLOROFORM	<1.0				
CHLOROMETHANE	<1.0				
2-CHLOROETHYL VINYL ETHER	<1.0				
DIBROMOCHLOROMETHANE	<1.0				
DICHLORODIFLUOROMETHANE	<1.0				
1,1-DICHLOROETHANE	1.0				
1,2-DICHLOROETHANE	<1.0				
1,1-DICHLOROETHENE	<1.0				
TRANS-1,2-DICHLOROETHENE	<1.0				
1,2-DICHLOROPROPANE	<1.0				
CIS-1,3-DICHLOROPROPENE	<1.0				
TRANS-1,3-DICHLOROPROPENE	<1.0				
METHYLENE CHLORIDE	<5.0				
1,1,2,2-TETRACHLOROETHANE	<1.0				



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TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168089 CLIENT SAMPLE ID: MW-11					DATE SAMPLED: 06/18/99
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
TETRACHLOROETHENE	<1.0				
1,1,1-TRICHLOROETHANE	<1.0				
1,1,2-TRICHLOROETHANE	<1.0				
TRICHLOROFLUOROMETHANE	<1.0				
TRICHLOROETHENE	<1.0				
VINYL CHLORIDE	<1.0				
BENZENE	<1.0				
CHLOROBENZENE	<1.0				
1,2-DICHLOROBENZENE	<1.0				
1,3-DICHLOROBENZENE	<1.0				
1,4-DICHLOROBENZENE	<1.0				
ETHYLBENZENE	<1.0				
TOLUENE	<1.0				
XYLEMES (TOTAL)	<1.0*				
CIS-1,2-DICHLOROETHENE	<1.0				

* m+p-xylanes: <1.0 ug/L
o-xylene : <1.0 ug/L

SAMPLE #: 168090	CLIENT SAMPLE ID: MW-13	DATE SAMPLED: 06/18/99
SEMIVOL. ORGANICS - PAH		UG/L
ACENAPHTHENE	<5.0	
ACENAPHTHYLENE	<5.0	
ANTHRACENE	<5.0	
BENZO(A)ANTHRACENE	<5.0	
BENZO(B)FLUORANTHENE	<5.0	
BENZO(K)FLUORANTHENE	<5.0	
BENZO(G,H,I)PERYLENE	<5.0	
BENZO(A)PYRENE	<5.0	
CHRYSENE	<5.0	



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TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168090 CLIENT SAMPLE ID: MW-13				DATE SAMPLED: 06/18/99	
SEMIVOL. ORGANICS - PAH		UG/L	06/27/99	EPA 610	387 (NC)
DIBENZO(A,H)ANTHRACENE	<5.0				
FLUORANTHENE	<5.0				
FLUORENE	<5.0				
INDENO(1,2,3-CD)PYRENE	<5.0				
NAPHTHALENE	<5.0				
PHENANTHRENE	<5.0				
PYRENE	<5.0				
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
BROMODICHLOROMETHANE	<1.0				
BROMOFORM	<1.0				
BROMOMETHANE	<1.0				
CARBON TETRACHLORIDE	<1.0				
CHLOROETHANE	<1.0				
CHLOROFORM	<1.0				
CHLOROMETHANE	<1.0				
2-CHLOROETHYL VINYL ETHER	<1.0				
DIBROMOCHLOROMETHANE	<1.0				
DICHLORODIFLUOROMETHANE	<1.0				
1,1-DICHLOROETHANE	3.3				
1,2-DICHLOROETHANE	<1.0				
1,1-DICHLOROETHENE	1.7				
TRANS-1,2-DICHLOROETHENE	<1.0				
1,2-DICLOROPROPANE	<1.0				
CIS-1,3-DICLOROPROPENE	<1.0				
TRANS-1,3-DICLOROPROPENE	<1.0				
METHYLENE CHLORIDE	<5.0				
1,1,2,2-TETRACHLOROETHANE	<1.0				
TETRACHLOROETHENE	<1.0				
1,1,1-TRICHLOROETHANE	<1.0				
1,1,2-TRICHLOROETHANE	<1.0				



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TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168090 CLIENT SAMPLE ID: MW-13			DATE SAMPLED: 06/18/99		
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
TRICHLOROFLUOROMETHANE	<1.0				
TRICHLOROETHENE	2.4				
VINYL CHLORIDE	<1.0				
BENZENE	<1.0				
CHLOROBENZENE	<1.0				
1,2-DICHLOROBENZENE	<1.0				
1,3-DICHLOROBENZENE	<1.0				
1,4-DICHLOROBENZENE	<1.0				
ETHYLBENZENE	<1.0				
TOLUENE	<1.0				
XYLENES (TOTAL)	<1.0*				
CIS-1,2-DICHLOROETHENE	2.7				
* m+p-xlenes: <1.0 ug/L o-xylene : <1.0 ug/L					
SAMPLE #: 168091 CLIENT SAMPLE ID: MW-14 I			DATE SAMPLED: 06/18/99		
SEMIVOL. ORGANICS - PAH		UG/L	06/27/99	EPA 610	387 (NC)
ACENAPHTHENE	<6.7				
ACENAPHTHYLENE	<6.7				
ANTHRACENE	<6.7				
BENZO(A)ANTHRACENE	<6.7				
BENZO(B)FLUORANTHENE	<6.7				
BENZO(K)FLUORANTHENE	<6.7				
BENZO(G,H,I)PERYLENE	<6.7				
BENZO(A)PYRENE	<6.7				
CHRYSENE	<6.7				
DIBENZO(A,H)ANTHRACENE	<6.7				
FLUORANTHENE	<6.7				
FLUORENE	<6.7				



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TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168091 CLIENT SAMPLE ID: MW-14 I				DATE SAMPLED: 06/18/99	
SEMIVOL. ORGANICS - PAH		UG/L	06/27/99	EPA 610	387 (NC)
INDENO(1,2,3-CD)PYRENE	<6.7				
NAPHTHALENE	<6.7				
PHENANTHRENE	<6.7				
PYRENE	<6.7				
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
BROMODICHLOROMETHANE	<1.0				
BROMOFORM	<1.0				
BROMOMETHANE	<1.0				
CARBON TETRACHLORIDE	<1.0				
CHLOROETHANE	<1.0				
CHLOROFORM	<1.0				
CHLOROMETHANE	<1.0				
2-CHLOROETHYL VINYL ETHER	<1.0				
DIBROMOCHLOROMETHANE	<1.0				
DICHLORODIFLUOROMETHANE	<1.0				
1,1-DICHLOROETHANE	<1.0				
1,2-DICHLOROETHANE	<1.0				
1,1-DICHLOROETHENE	<1.0				
TRANS-1,2-DICHLOROETHENE	<1.0				
1,2-DICHLOROPROPANE	<1.0				
CIS-1,3-DICHLOROPROPENE	<1.0				
TRANS-1,3-DICHLOROPROPENE	<1.0				
METHYLENE CHLORIDE	<5.0				
1,1,2,2-TETRACHLOROETHANE	<1.0				
TETRACHLOROETHENE	<1.0				
1,1,1-TRICHLOROETHANE	<1.0				
1,1,2-TRICHLOROETHANE	<1.0				
TRICHLOROFLUOROMETHANE	<1.0				
TRICHLOROETHENE	<1.0				
VINYL CHLORIDE	<1.0				



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P.O. #
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TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168091 CLIENT SAMPLE ID: MW-14 I				DATE SAMPLED: 06/18/99	
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
BENZENE	<1.0				
CHLOROBENZENE	<1.0				
1,2-DICHLOROBENZENE	<1.0				
1,3-DICHLOROBENZENE	<1.0				
1,4-DICHLOROBENZENE	<1.0				
ETHYLBENZENE	<1.0				
TOLUENE	<1.0				
XYLENES (TOTAL)	<1.0*				
CIS-1,2-DICHLOROETHENE	<1.0				
* m+p-xlenes: <1.0 ug/L o-xylene : <1.0 ug/L					
SAMPLE #: 168092 CLIENT SAMPLE ID: MW-15 I				DATE SAMPLED: 06/18/99	
SEMOVOL. ORGANICS - PAH		UG/L	06/27/99	EPA 610	387 (NC)
ACENAPHTHENE	<6.0				
ACENAPHTHYLENE	<6.0				
ANTHRACENE	<6.0				
BENZO(A)ANTHRACENE	<6.0				
BENZO(B)FLUORANTHENE	<6.0				
BENZO(K)FLUORANTHENE	<6.0				
BENZO(G,H,I)PERYLENE	<6.0				
BENZO(A)PYRENE	<6.0				
CHRYSENE	<6.0				
DIBENZO(A,H)ANTHRACENE	<6.0				
FLUORANTHENE	<6.0				
FLUORENE	<6.0				
INDENO(1,2,3-CD)PYRENE	<6.0				
NAPHTHALENE	<6.0				
PHENANTHRENE	<6.0				



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CLIENT JOB NUMBER: 001394012

TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168092	CLIENT SAMPLE ID: MW-15 I				DATE SAMPLED: 06/18/99
SEMOVOL. ORGANICS - PAH		UG/L	06/27/99	EPA 610	387 (NC)
PYRENE	<6.0				
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
BROMODICHLOROMETHANE	<1.0				
BROMOFORM	<1.0				
BROMOMETHANE	<1.0				
CARBON TETRACHLORIDE	<1.0				
CHLOROETHANE	<1.0				
CHLOROFORM	<1.0				
CHLOROMETHANE	<1.0				
2-CHLOROETHYL VINYL ETHER	<1.0				
DIBROMOCHLOROMETHANE	<1.0				
DICHLORODIFLUOROMETHANE	<1.0				
1,1-DICHLOROETHANE	<1.0				
1,2-DICHLOROETHANE	<1.0				
1,1-DICHLOROETHENE	<1.0				
TRANS-1,2-DICHLOROETHENE	<1.0				
1,2-DICHLOROPROPANE	<1.0				
CIS-1,3-DICHLOROPROPENE	<1.0				
TRANS-1,3-DICHLOROPROPENE	<1.0				
METHYLENE CHLORIDE	<5.0				
1,1,2,2-TETRACHLOROETHANE	<1.0				
TETRACHLOROETHENE	<1.0				
1,1,1-TRICHLOROETHANE	<1.0				
1,1,2-TRICHLOROETHANE	<1.0				
TRICHLOROFLUOROMETHANE	<1.0				
TRICHLOROETHENE	<1.0				
VINYL CHLORIDE	<1.0				
BENZENE	4.8				
CHLOROBENZENE	<1.0				
1,2-DICHLOROBENZENE	<1.0				



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TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168092 CLIENT SAMPLE ID: MW-15 I				DATE SAMPLED: 06/18/99	
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
1,3-DICHLOROBENZENE	<1.0				
1,4-DICHLOROBENZENE	<1.0				
ETHYLBENZENE	1.2				
TOLUENE	1.0				
XYLENES (TOTAL)	*				
CIS-1,2-DICHLOROETHENE	<1.0				
* m+p-xylanes: 1.9 ug/L o-xylene : <1.0 ug/L					
SAMPLE #: 168093 CLIENT SAMPLE ID: MW-16 I				DATE SAMPLED: 06/18/99	
SEMIVOL. ORGANICS - PAH		UG/L	06/27/99	EPA 610	387 (NC)
ACENAPHTHENE	<5.0				
ACENAPHTHYLENE	<5.0				
ANTHRACENE	<5.0				
BENZO(A)ANTHRACENE	<5.0				
BENZO(B)FLUORANTHENE	<5.0				
BENZO(K)FLUORANTHENE	<5.0				
BENZO(G,H,I)PERYLENE	<5.0				
BENZO(A)PYRENE	<5.0				
CHRYSENE	<5.0				
DIBENZO(A,H)ANTHRACENE	<5.0				
FLUORANTHENE	<5.0				
FLUORENE	<5.0				
INDENO(1,2,3-CD)PYRENE	<5.0				
NAPHTHALENE	<5.0				
PHENANTHRENENE	<5.0				
PYRENE	<5.0				



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TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168093 CLIENT SAMPLE ID: MW-16 I					DATE SAMPLED: 06/18/99
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
BROMODICHLOROMETHANE	<1.0				
BROMOFORM	<1.0				
BROMOMETHANE	<1.0				
CARBON TETRACHLORIDE	<1.0				
CHLOROETHANE	<1.0				
CHLOROFORM	<1.0				
CHLOROMETHANE	<1.0				
2-CHLOROETHYL VINYL ETHER	<1.0				
DIBROMOCHLOROMETHANE	<1.0				
DICHLORODIFLUOROMETHANE	<1.0				
1,1-DICHLOROETHANE	<1.0				
1,2-DICHLOROETHANE	<1.0				
1,1-DICHLOROETHENE	<1.0				
TRANS-1,2-DICHLOROETHENE	<1.0				
1,2-DICHLOROPROPANE	<1.0				
CIS-1,3-DICHLOROPROPENE	<1.0				
TRANS-1,3-DICHLOROPROPENE	<1.0				
METHYLENE CHLORIDE	<5.0				
1,1,2,2-TETRACHLOROETHANE	<1.0				
TETRACHLOROETHENE	<1.0				
1,1,1-TRICHLOROETHANE	<1.0				
1,1,2-TRICHLOROETHANE	<1.0				
TRICHLOROFLUOROMETHANE	<1.0				
TRICHLOROETHENE	<1.0				
VINYL CHLORIDE	<1.0				
BENZENE	<1.0				
CHLOROBENZENE	<1.0				
1,2-DICHLOROBENZENE	<1.0				
1,3-DICHLOROBENZENE	<1.0				
1,4-DICHLOROBENZENE	<1.0				
ETHYLBENZENE	<1.0				



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TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168093 CLIENT SAMPLE ID: MW-16 I			DATE SAMPLED: 06/18/99		
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
TOLUENE	<1.0				
XYLEMES (TOTAL)	<1.0*				
CIS-1,2-DICHLOROETHENE	<1.0				
* m+p-xylenes: <1.0 ug/L o-xylene : <1.0 ug/L					
SAMPLE #: 168094 CLIENT SAMPLE ID: MW-17			DATE SAMPLED: 06/18/99		
SEMOVOL. ORGANICS - PAH		UG/L	06/27/99	EPA 610	387 (NC)
ACENAPHTHENE	<5.0				
ACENAPHTHYLENE	<5.0				
ANTHRACENE	<5.0				
BENZO(A)ANTHRACENE	<5.0				
BENZO(B)FLUORANTHENE	<5.0				
BENZO(K)FLUORANTHENE	<5.0				
BENZO(G,H,I)PERYLENE	<5.0				
BENZO(A)PYRENE	<5.0				
CHRYSENE	<5.0				
DIBENZO(A,H)ANTHRACENE	<5.0				
FLUORANTHENE	<5.0				
FLUORENE	<5.0				
INDENO(1,2,3-CD)PYRENE	<5.0				
NAPHTHALENE	<5.0				
PHENANTHRENE	<5.0				
PYRENE	<5.0				
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
BROMODICHLOROMETHANE	<1.0				
BROMOFORM	<1.0				
BROMOMETHANE	<1.0				



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PROJECT #: 991541
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MORRISVILLE NC 27560
ATTN: MR. CHARLES ROSS

DUPLICATE COPY 08/05/99

P.O. #
CLIENT JOB NUMBER: 001394012

TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168094 CLIENT SAMPLE ID: MW-17				DATE SAMPLED: 06/18/99	
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
CARBON TETRACHLORIDE	<1.0				
CHLOROETHANE	<1.0				
CHLOROFORM	<1.0				
CHLOROMETHANE	<1.0				
2-CHLOROETHYL VINYL ETHER	<1.0				
DIBROMOCHLOROMETHANE	<1.0				
DICHLORODIFLUOROMETHANE	<1.0				
1,1-DICHLOROETHANE	6.0				
1,2-DICHLOROETHANE	<1.0				
1,1-DICHLOROETHENE	<1.0				
TRANS-1,2-DICHLOROETHENE	<1.0				
1,2-DICLOROPROPANE	<1.0				
CIS-1,3-DICLOROPROPENE	<1.0				
TRANS-1,3-DICLOROPROPENE	<1.0				
METHYLENE CHLORIDE	<5.0				
1,1,2,2-TETRACHLOROETHANE	<1.0				
TETRACHLOROETHENE	<1.0				
1,1,1-TRICHLOROETHANE	<1.0				
1,1,2-TRICHLOROETHANE	<1.0				
TRICHLOROFUOROMETHANE	<1.0				
TRICHLOROETHENE	<1.0				
VINYL CHLORIDE	5.0				
BENZENE	<1.0				
CHLOROBENZENE	<1.0				
1,2-DICHLOROBENZENE	<1.0				
1,3-DICHLOROBENZENE	<1.0				
1,4-DICHLOROBENZENE	<1.0				
ETHYLBENZENE	<1.0				
TOLUENE	<1.0				
XYLEMES (TOTAL)	<1.0*				
CIS-1,2-DICHLOROETHENE	1.0				



QUANTUM ENVIRONMENTAL, INC.
2200 GATEWAY BLVD., SUITE 205

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TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168094 CLIENT SAMPLE ID: MW-17	DATE SAMPLED: 06/18/99				
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
* m+p-xylanes: <1.0 ug/L o-xylene : <1.0 ug/L					
SAMPLE #: 168095 CLIENT SAMPLE ID: MW-18					DATE SAMPLED: 06/18/99
SEMIVOL. ORGANICS - PAH		UG/L	06/27/99	EPA 610	387 (NC)
ACENAPHTHENE	<5.0				
ACENAPHTHYLENE	<5.0				
ANTHRACENE	<5.0				
BENZO(A)ANTHRACENE	<5.0				
BENZO(B)FLUORANTHENE	<5.0				
BENZO(K)FLUORANTHENE	<5.0				
BENZO(G,H,I)PERYLENE	<5.0				
BENZO(A)PYRENE	<5.0				
CHRYSENE	<5.0				
DIBENZO(A,H)ANTHRACENE	<5.0				
FLUORANTHENE	<5.0				
FLUORENE	<5.0				
INDENO(1,2,3-CD)PYRENE	<5.0				
NAPHTHALENE	<5.0				
PHENANTHRENE	<5.0				
PYRENE	<5.0				
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
BROMODICHLOROMETHANE	<1.0				
BROMOFORM	<1.0				
BROMOMETHANE	<1.0				
CARBON TETRACHLORIDE	<1.0				
CHLOROETHANE	<1.0				
CHLOROFORM	<1.0				



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TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168095 CLIENT SAMPLE ID: MW-18				DATE SAMPLED: 06/18/99	
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
CHLOROMETHANE	<1.0				
2-CHLOROETHYL VINYL ETHER	<1.0				
DIBROMOCHLOROMETHANE	<1.0				
DICHLORODIFLUOROMETHANE	<1.0				
1,1-DICHLOROETHANE	<1.0				
1,2-DICHLOROETHANE	<1.0				
1,1-DICHLOROETHENE	<1.0				
TRANS-1,2-DICHLOROETHENE	<1.0				
1,2-DICHLOROPROPANE	<1.0				
CIS-1,3-DICHLOROPROPENE	<1.0				
TRANS-1,3-DICHLOROPROPENE	<1.0				
METHYLENE CHLORIDE	<5.0				
1,1,2,2-TETRACHLOROETHANE	<1.0				
TETRACHLOROETHENE	<1.0				
1,1,1-TRICHLOROETHANE	<1.0				
1,1,2-TRICHLOROETHANE	<1.0				
TRICHLOROFLUOROMETHANE	<1.0				
TRICHLOROETHENE	<1.0				
VINYL CHLORIDE	<1.0				
BENZENE	<1.0				
CHLOROBENZENE	<1.0				
1,2-DICHLOROBENZENE	<1.0				
1,3-DICHLOROBENZENE	<1.0				
1,4-DICHLOROBENZENE	<1.0				
ETHYLBENZENE	<1.0				
TOLUENE	<1.0				
XYLENES (TOTAL)	<1.0*				
CIS-1,2-DICHLOROETHENE	<1.0				

* m+p-xlenes: <1.0 ug/L
o-xylene : <1.0 ug/L



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P.O. #
CLIENT JOB NUMBER: 001394012

TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168096 CLIENT SAMPLE ID: MW-20D				DATE SAMPLED: 06/18/99	
SEMIVOL. ORGANICS - PAH		UG/L	06/27/99	EPA 610	387 (NC)
ACENAPHTHENE	<5.0				
ACENAPHTHYLENE	<5.0				
ANTHRACENE	<5.0				
BENZO(A)ANTHRACENE	<5.0				
BENZO(B)FLUORANTHENE	<5.0				
BENZO(K)FLUORANTHENE	<5.0				
BENZO(G,H,I)PERYLENE	<5.0				
BENZO(A)PYRENE	<5.0				
CHRYSENE	<5.0				
DIBENZO(A,H)ANTHRACENE	<5.0				
FLUORANTHENE	<5.0				
FLUORENE	<5.0				
INDENO(1,2,3-CD)PYRENE	<5.0				
NAPHTHALENE	<5.0				
PHENANTHRENE	<5.0				
PYRENE	<5.0				
VOL. ORGANICS - EPA 601-602		UG/L	06/26/99	EPA 601-602	387 (NC)
BROMODICHLOROMETHANE	<1.0				
BROMOFORM	<1.0				
BROMOMETHANE	<1.0				
CARBON TETRACHLORIDE	<1.0				
CHLOROETHANE	<1.0				
CHLOROFORM	<1.0				
CHLOROMETHANE	<1.0				
2-CHLOROETHYL VINYL ETHER	<1.0				
DIBROMOCHLOROMETHANE	<1.0				
DICHLORODIFLUOROMETHANE	<1.0				
1,1-DICHLOROETHANE	<1.0				
1,2-DICHLOROETHANE	<1.0				
1,1-DICHLOROETHENE	<1.0				



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P.O. #
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TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168096 CLIENT SAMPLE ID: MW-20D					DATE SAMPLED: 06/18/99
VOL. ORGANICS - EPA 601-602		UG/L	06/26/99	EPA 601-602	387 (NC)
TRANS-1,2-DICHLOROETHENE	<1.0				
1,2-DICHLOROPROPANE	<1.0				
CIS-1,3-DICHLOROPROPENE	<1.0				
TRANS-1,3-DICHLOROPROPENE	<1.0				
METHYLENE CHLORIDE	<5.0				
1,1,2,2-TETRACHLOROETHANE	<1.0				
TETRACHLOROETHENE	<1.0				
1,1,1-TRICHLOROETHANE	<1.0				
1,1,2-TRICHLOROETHANE	<1.0				
TRICHLOROFLUOROMETHANE	<1.0				
TRICHLOROETHENE	<1.0				
VINYL CHLORIDE	3.0				
BENZENE	12.3				
CHLOROBENZENE	<1.0				
1,2-DICHLOROBENZENE	<1.0				
1,3-DICHLOROBENZENE	<1.0				
1,4-DICHLOROBENZENE	<1.0				
ETHYLBENZENE	<1.0				
TOLUENE	<1.0				
XYLENES (TOTAL)	<1.0*				
CIS-1,2-DICHLOROETHENE	1.1				

* m+p-xylenes: <1.0 ug/L
o-xylene : <1.0 ug/L

SAMPLE #: 168097	CLIENT SAMPLE ID: MW-22		DATE SAMPLED: 06/18/99
SEMOVOL. ORGANICS - PAH		UG/L	06/28/99
ACENAPHTHENE	<5.0		EPA 610
ACENAPHTHYLENE	<5.0		387 (NC)
ANTHRACENE	<5.0		



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TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168097 CLIENT SAMPLE ID: MW-22				DATE SAMPLED: 06/18/99	
SEMIVOL. ORGANICS - PAH		UG/L	06/28/99	EPA 610	387 (NC)
BENZO(A)ANTHRACENE	<5.0				
BENZO(B)FLUORANTHENE	<5.0				
BENZO(K)FLUORANTHENE	<5.0				
BENZO(G,H,I)PERYLENE	<5.0				
BENZO(A)PYRENE	<5.0				
CHRYSENE	<5.0				
DIBENZO(A,H)ANTHRACENE	<5.0				
FLUORANTHENE	<5.0				
FLUORENE	<5.0				
INDENO(1,2,3-CD)PYRENE	<5.0				
NAPHTHALENE	<5.0				
PHENANTHRENE	<5.0				
PYRENE	<5.0				
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
BROMODICHLOROMETHANE	<1.0				
BROMOFORM	<1.0				
BROMOMETHANE	<1.0				
CARBON TETRACHLORIDE	<1.0				
CHLOROETHANE	<1.0				
CHLOROFORM	<1.0				
CHLOROMETHANE	<1.0				
2-CHLOROETHYL VINYL ETHER	<1.0				
DIBROMOCHLOROMETHANE	<1.0				
DICHLORODIFLUOROMETHANE	<1.0				
1,1-DICHLOROETHANE	<1.0				
1,2-DICHLOROETHANE	<1.0				
1,1-DICHLOROETHENE	<1.0				
TRANS-1,2-DICHLOROETHENE	<1.0				
1,2-DICHLOROPROPANE	<1.0				
CIS-1,3-DICHLOROPROPENE	<1.0				



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TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168097 CLIENT SAMPLE ID: MW-22					DATE SAMPLED: 06/18/99
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
TRANS-1,3-DICHLOROPROPENE	<1.0				
METHYLENE CHLORIDE	<5.0				
1,1,2,2-TETRACHLOROETHANE	<1.0				
TETRACHLOROETHENE	<1.0				
1,1,1-TRICHLOROETHANE	<1.0				
1,1,2-TRICHLOROETHANE	<1.0				
TRICHLOROFLUOROMETHANE	<1.0				
TRICHLOROETHENE	<1.0				
VINYL CHLORIDE	<1.0				
BENZENE	<1.0				
CHLOROBENZENE	<1.0				
1,2-DICHLOROBENZENE	<1.0				
1,3-DICHLOROBENZENE	<1.0				
1,4-DICHLOROBENZENE	<1.0				
ETHYLBENZENE	<1.0				
TOLUENE	<1.0				
XYLENES (TOTAL)	<1.0*				
CIS-1,2-DICHLOROETHENE	<1.0				
* m+p-xylenes: <1.0 ug/L o-xylene : <1.0 ug/L					
SAMPLE #: 168098 CLIENT SAMPLE ID: MW-23					DATE SAMPLED: 06/18/99
SEMOVOL. ORGANICS - PAH		UG/L	06/28/99	EPA 610	387 (NC)
ACENAPHTHENE	<5.6				
ACENAPHTHYLENE	<5.6				
ANTHRACENE	<5.6				
BENZO(A)ANTHRACENE	<5.6				
BENZO(B)FLUORANTHENE	<5.6				
BENZO(K)FLUORANTHENE	<5.6				



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TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168098 CLIENT SAMPLE ID: MW-23				DATE SAMPLED: 06/18/99	
SEMIVOL. ORGANICS - PAH		UG/L	06/28/99	EPA 610	387 (NC)
BENZO(G,H,I)PERYLENE	<5.6				
BENZO(A)PYRENE	<5.6				
CHRYSENE	<5.6				
DIBENZO(A,H)ANTHRACENE	<5.6				
FLUORANTHENE	<5.6				
FLUORENE	<5.6				
INDENO(1,2,3-CD)PYRENE	<5.6				
NAPHTHALENE	12.0				
PHENANTHRENE	<5.6				
PYRENE	<5.6				
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
BROMODICHLOROMETHANE	<1.0				
BROMOFORM	<1.0				
BROMOMETHANE	<1.0				
CARBON TETRACHLORIDE	<1.0				
CHLOROETHANE	<1.0				
CHLOROFORM	<1.0				
CHLOROMETHANE	<1.0				
2-CHLOROETHYL VINYL ETHER	<1.0				
DIBROMOCHLOROMETHANE	<1.0				
DICHLORODIFLUOROMETHANE	<1.0				
1,1-DICHLOROETHANE	<1.0				
1,2-DICHLOROETHANE	1.3				
1,1-DICHLOROETHENE	<1.0				
TRANS-1,2-DICHLOROETHENE	<1.0				
1,2-DICHLOROPROPANE	<1.0				
CIS-1,3-DICHLOROPROPENE	<1.0				
TRANS-1,3-DICHLOROPROPENE	<1.0				
METHYLENE CHLORIDE	<5.0				
1,1,2,2-TETRACHLOROETHANE	<1.0				



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TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168098 CLIENT SAMPLE ID: MW-23			DATE SAMPLED: 06/18/99		
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
TETRACHLOROETHENE	<1.0				
1,1,1-TRICHLOROETHANE	<1.0				
1,1,2-TRICHLOROETHANE	<1.0				
TRICHLOROFUOROMETHANE	<1.0				
TRICHLOROETHENE	<1.0				
VINYL CHLORIDE	<1.0				
BENZENE	37.1				
CHLOROBENZENE	<1.0				
1,2-DICHLOROBENZENE	<1.0				
1,3-DICHLOROBENZENE	<1.0				
1,4-DICHLOROBENZENE	<1.0				
ETHYLBENZENE	19.1				
TOLUENE	7.5				
XYLENES (TOTAL)	*				
CIS-1,2-DICHLOROETHENE	<1.0				
* m+p-xlenes: 30.9 ug/L o-xylene : 8.7 ug/L					

SAMPLE #: 168099	CLIENT SAMPLE ID: MW-24	DATE SAMPLED: 06/18/99
SEMIVOL. ORGANICS - PAH		UG/L
ACENAPHTHENE	<5.0	06/28/99
ACENAPHTHYLENE	<5.0	EPA 610
ANTHRACENE	<5.0	387 (NC)
BENZO(A)ANTHRACENE	<5.0	
BENZO(B)FLUORANTHENE	<5.0	
BENZO(K)FLUORANTHENE	<5.0	
BENZO(G,H,I)PERYLENE	<5.0	
BENZO(A)PYRENE	<5.0	
CHRYSENE	<5.0	



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P.O. #
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TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168099 CLIENT SAMPLE ID: MW-24				DATE SAMPLED: 06/18/99	
SEMIVOL. ORGANICS - PAH		UG/L	06/28/99	EPA 610	387 (NC)
DIBENZO(A,H)ANTHRACENE	<5.0				
FLUORANTHENE	<5.0				
FLUORENE	<5.0				
INDENO(1,2,3-CD)PYRENE	<5.0				
NAPHTHALENE	<5.0				
PHENANTHRENE	<5.0				
PYRENE	<5.0				
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
BROMODICHLOROMETHANE	<1.0				
BROMOFORM	<1.0				
BROMOMETHANE	<1.0				
CARBON TETRACHLORIDE	<1.0				
CHLOROETHANE	<1.0				
CHLOROFORM	<1.0				
CHLOROMETHANE	<1.0				
2-CHLOROETHYL VINYLETHER	<1.0				
DIBROMOCHLOROMETHANE	<1.0				
DICHLORODIFLUOROMETHANE	<1.0				
1,1-DICHLOROETHANE	<1.0				
1,2-DICHLOROETHANE	<1.0				
1,1-DICHLOROETHENE	<1.0				
TRANS-1,2-DICHLOROETHENE	<1.0				
1,2-DICLOROPROPANE	<1.0				
CIS-1,3-DICLOROPROPENE	<1.0				
TRANS-1,3-DICLOROPROPENE	<1.0				
METHYLENE CHLORIDE	<1.0				
1,1,2,2-TETRACHLOROETHANE	<1.0				
TETRACHLOROETHENE	<1.0				
1,1,1-TRICHLOROETHANE	<1.0				
1,1,2-TRICHLOROETHANE	<1.0				



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P.O. #
CLIENT JOB NUMBER: 001394012

TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168099 CLIENT SAMPLE ID: MW-24			DATE SAMPLED: 06/18/99		
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
TRICHLOROFLUOROMETHANE	<1.0				
TRICHLOROETHENE	<1.0				
VINYL CHLORIDE	<1.0				
BENZENE	<1.0				
CHLOROBENZENE	<1.0				
1,2-DICHLOROBENZENE	<1.0				
1,3-DICHLOROBENZENE	<1.0				
1,4-DICHLOROBENZENE	<1.0				
ETHYLBENZENE	<1.0				
TOLUENE	<1.0				
XYLENES (TOTAL)	<1.0*				
CIS-1,2-DICHLOROETHENE	<1.0				
* m+p-xylenes: <1.0 ug/L o-xylenes : <1.0 ug/L					
SAMPLE #: 168100 CLIENT SAMPLE ID: MW-25			DATE SAMPLED: 06/18/99		
SEMOVOL. ORGANICS - PAH		UG/L	06/28/99	EPA 610	387 (NC)
ACENAPHTHENE	<5.0				
ACENAPHTHYLENE	<5.0				
ANTHRACENE	<5.0				
BENZO(A)ANTHRACENE	<5.0				
BENZO(B)FLUORANTHENE	<5.0				
BENZO(K)FLUORANTHENE	<5.0				
BENZO(G,H,I)PERYLENE	<5.0				
BENZO(A)PYRENE	<5.0				
CHRYSENE	<5.0				
DIBENZO(A,H)ANTHRACENE	<5.0				
FLUORANTHENE	<5.0				
FLUORENE	<5.0				



QUANTUM ENVIRONMENTAL, INC.
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P.O. #
CLIENT JOB NUMBER: 001394012

TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168100 CLIENT SAMPLE ID: MW-25					DATE SAMPLED: 06/18/99
SEMOVOL. ORGANICS - PAH		UG/L	06/28/99	EPA 610	387 (NC)
INDENO(1,2,3-CD)PYRENE	<5.0				
NAPHTHALENE	<5.0				
PHENANTHRENE	<5.0				
PYRENE	<5.0				
VOL. ORGANICS - EPA 601-602	**	UG/L	06/28/99	EPA 601-602	387 (NC)
BROMODICHLOROMETHANE	<10				
BROMOFORM	<10				
BROMOMETHANE	<10				
CARBON TETRACHLORIDE	<10				
CHLOROETHANE	<10				
CHLOROFORM	<10				
CHLOROMETHANE	<10				
2-CHLOROETHYL VINYL ETHER	<10				
DIBROMOCHLOROMETHANE	<10				
DICHLORODIFLUOROMETHANE	<10				
1,1-DICHLOROETHANE	282				
1,2-DICHLOROETHANE	<10				
1,1-DICHLOROETHENE	204				
TRANS-1,2-DICHLOROETHENE	<10				
1,2-DICLOROPROPANE	<10				
CIS-1,3-DICLOROPROPENE	<10				
TRANS-1,3-DICLOROPROPENE	<10				
METHYLENE CHLORIDE	<50				
1,1,2,2-TETRACHLOROETHANE	<10				
TETRACHLOROETHENE	<10				
1,1,1-TRICHLOROETHANE	358				
1,1,2-TRICHLOROETHANE	<10				
TRICHLOROFUOROMETHANE	<10				
TRICHLOROETHENE	98.0				
VINYL CHLORIDE	<10				



QUANTUM ENVIRONMENTAL, INC.
2200 GATEWAY BLVD., SUITE 205

PROJECT #: 991541
RECEIVED: 06/18/99

MORRISVILLE NC 27560
ATTN: MR. CHARLES ROSS

DUPLICATE COPY 08/05/99

P.O. #
CLIENT JOB NUMBER: 001394012

TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168100 CLIENT SAMPLE ID: MW-25					DATE SAMPLED: 06/18/99
VOL. ORGANICS - EPA 601-602	**	UG/L	06/28/99	EPA 601-602	387 (NC)
BENZENE	<10				
CHLOROBENZENE	<10				
1,2-DICHLOROBENZENE	<10				
1,3-DICHLOROBENZENE	<10				
1,4-DICHLOROBENZENE	<10				
ETHYLBENZENE	<10				
TOLUENE	<10				
XYLEMES (TOTAL)	<10*				
CIS-1,2-DICHLOROETHENE	151				
* m+p-xylene: <10 ug/L o-xylene: <10 ug/L					
** Dilution factor 10					
SAMPLE #: 168101 CLIENT SAMPLE ID: MW-26					DATE SAMPLED: 06/18/99
SEMOVOL. ORGANICS - PAH		UG/L	06/28/99	EPA 610	387 (NC)
ACENAPHTHENE	<5.0				
ACENAPHTHYLENE	<5.0				
ANTHRACENE	<5.0				
BENZO(A)ANTHRACENE	<5.0				
BENZO(B)FLUORANTHENE	<5.0				
BENZO(K)FLUORANTHENE	<5.0				
BENZO(G,H,I)PERYLENE	<5.0				
BENZO(A)PYRENE	<5.0				
CHRYSENE	<5.0				
DIBENZO(A,H)ANTHRACENE	<5.0				
FLUORANTHENE	<5.0				
FLUORENE	<5.0				
INDENO(1,2,3-CD)PYRENE	<5.0				
NAPHTHALENE	<5.0				



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TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168101	CLIENT SAMPLE ID: MW-26				
SEMIVOL. ORGANICS - PAH		UG/L	06/28/99	EPA 610	387 (NC)
PHENANTHRENE	<5.0				
PYRENE	<5.0				
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
BROMODICHLOROMETHANE	<1.0				
BROMOFORM	<1.0				
BROMOMETHANE	<1.0				
CARBON TETRACHLORIDE	<1.0				
CHLOROETHANE	<1.0				
CHLOROFORM	<1.0				
CHLOROMETHANE	<1.0				
2-CHLOROETHYL VINYL ETHER	<1.0				
DIBROMOCHLOROMETHANE	<1.0				
DICHLORODIFLUOROMETHANE	<1.0				
1,1-DICHLOROETHANE	3.6				
1,2-DICHLOROETHANE	<1.0				
1,1-DICHLOROETHENE	4.2				
TRANS-1,2-DICHLOROETHENE	<1.0				
1,2-DICHLOROPROPANE	<1.0				
CIS-1,3-DICHLOROPROPENE	<1.0				
TRANS-1,3-DICHLOROPROPENE	<1.0				
METHYLENE CHLORIDE	<5.0				
1,1,2,2-TETRACHLOROETHANE	<1.0				
TETRACHLOROETHENE	<1.0				
1,1,1-TRICHLOROETHANE	<1.0				
1,1,2-TRICHLOROETHANE	<1.0				
TRICHLOROFUOROMETHANE	<1.0				
TRICHLOROETHENE	<1.0				
VINYL CHLORIDE	7.0				
BENZENE	<1.0				
CHLOROBENZENE	<1.0				



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TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 168101 CLIENT SAMPLE ID: MW-26				DATE SAMPLED: 06/18/99	
VOL. ORGANICS - EPA 601-602		UG/L	06/25/99	EPA 601-602	387 (NC)
1,2-DICHLOROBENZENE	<1.0				
1,3-DICHLOROBENZENE	<1.0				
1,4-DICHLOROBENZENE	<1.0				
ETHYLBENZENE	<1.0				
TOLUENE	<1.0				
XYLENES (TOTAL)	<1.0*				
CIS-1,2-DICHLOROETHENE	5.8				

* m+p-xlenes: <1.0 ug/L
o-xylene : <1.0 ug/L

Douglas W. Mendrala
Laboratory Director

06/30/99
Date

All tests performed under NYS ELAP Laboratory Certification # 11375 unless otherwise stated.
Laboratory Certification #

